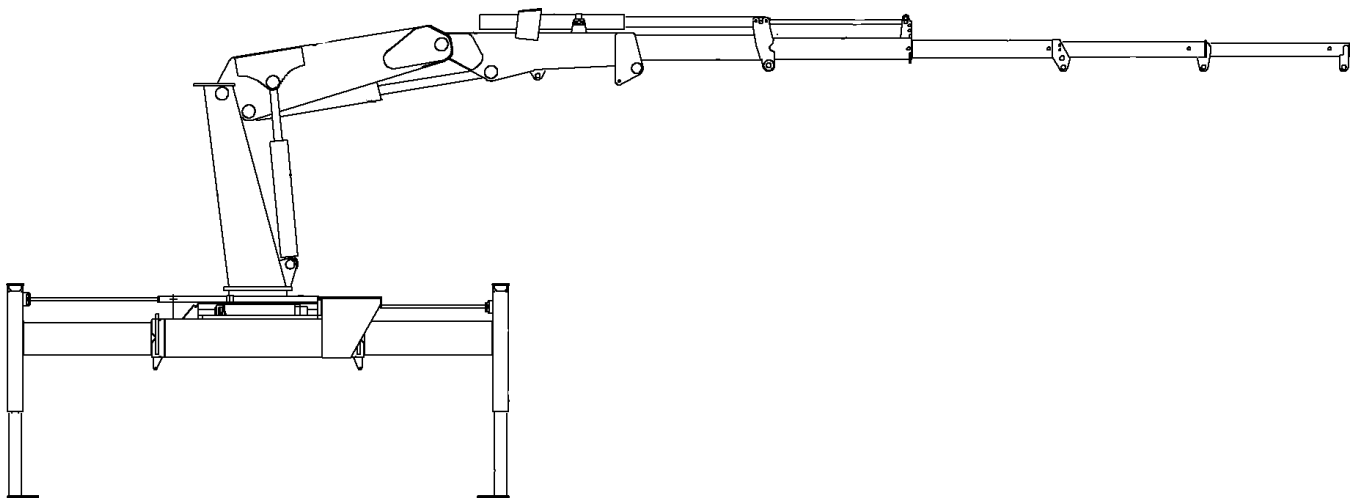




18000 Series Crane & Model 2595 (Metric Version)

Volume 2 - PARTS AND SPECIFICATIONS

Section 1	SPECIFICATIONS-18000 SERIES
Section 1A.	SPECIFICATIONS-2595 CRANE
Section 2	CRANE REFERENCE
Section 3	REPLACEMENT PARTS
Section 4	GENERAL REFERENCE



IOWA MOLD TOOLING CO., INC.

BOX 189, GARNER, IA 50438-0189

TEL: 515-923-3711

TECHNICAL SUPPORT FAX: 515-923-2424

MANUAL PART NUMBER 99900920

INTRODUCTION

This volume deals with information applicable to your particular crane. For operating, maintenance and repair instructions, refer to Volume 1, OPERATION, MAINTENANCE AND REPAIR.

We recommend that this volume be kept in a safe place in the office.

This manual is provided to assist you with ordering parts for your IMT crane. It also contains additional instructions regarding your particular installation.

It is the user's responsibility to maintain and operate this unit in a manner that will result in the safest working conditions possible.

Warranty of this unit will be void on any part of the unit subjected to misuse due to overloading, abuse, lack of maintenance and unauthorized modifications. No warranty - verbal, written or implied - other than the official, published IMT new machinery and equipment warranty will be valid with this unit.

In addition, it is also the user's responsibility to be aware of existing Federal, State and Local codes and regulations governing the safe use and maintenance of this unit. Listed below is a publication that the user should thoroughly read and understand.

ANSI/ASME B30.22
ARTICULATING BOOM CRANES
The American Society of Mechanical Engineers
United Engineering Center
345 East 47th Street
New York, NY 10017

Three means are used throughout this manual to gain the attention of personnel. They are NOTE's, CAUTION's and WARNING's and are defined as follows:

NOTE

A NOTE is used to either convey additional information or to provide further emphasis for a previous point.

CAUTION

A CAUTION is used when there is the very strong possibility of damage to the equipment or premature equipment failure.

WARNING

A WARNING is used when there is the potential for personal injury or death.

Treat this equipment with respect and service it regularly. These two things can add up to a safer working environment.

**Read and familiarize yourself with the
IMT OPERATOR'S CRANE SAFETY MANUAL
before operating or performing any maintenance
on your crane.**

SECTION 1. 18000 SERIES CRANE SPECIFICATIONS

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18000 SERIES CRANE SPECIFICATIONS

GENERAL SPECIFICATIONS

	2H1M	2H2M	2H3M
*CRANE RATING (ANSI B30.22)	180,000 ft-lbs	180,000 ft-lbs	180,000 ft-lbs
*MAXIMUM CRANE RATING	180,000 ft-lbs	180,000 ft-lbs	180,000 ft-lbs
HORIZONTAL REACH from centerline of rotation	25'-10"	30'-4"	34'-10"
HYDRAULIC EXTENSION	45"/51"	45"/51"	45"/51"
MANUAL EXTENSION	55"	55"/54"	55"/54"/54"
VERTICAL REACH from mounting surface	31'-8"	35'-5"	39'-3"
VERTICAL REACH from ground / 41" frame ht.	35'-1"	38'-10"	42'-8"
CRANE WEIGHT	8860 lbs	9030 lbs	9170 lbs
OUTRIGGER SPAN (standard)	16'-1"	16'-1"	16'-1"
OUTRIGGER SPAN (optional)	20'-8"	20'-8"	20'-8"
OUTRIGGER PADS	12" x 12"	12" x 12"	12" x 12"
CRANE STORAGE HEIGHT from mounting surface	8'-9"	8'-9"	8'-9"
CRANE STORAGE HEIGHT from ground / 41" frame ht.	12'-2"	12'-2"	12'-2"
**MOUNTING SPACE REQUIRED	38"	38"	38"
ROTATIONAL TORQUE	24150 ft-lbs	24150 ft-lbs	24150 ft-lbs
OPTIMUM PUMP CAPACITY	16 U.S. GPM	16 U.S. GPM	16 U.S. GPM
SYSTEM OPERATING PRESSURE	2500 PSI	2500 PSI	2500 PSI
OIL RESERVOIR CAPACITY	26 U.S. Gallons	26 U.S. Gallons	26 U.S. Gallons
HOOK APPROACH - HORIZONTAL from centerline of rotation	3'-3"	3'-3"	3'-3"
HOOK APPROACH - VERTICAL from mounting surface	8'-0"	8'-0"	8'-0"
***HORIZONTAL CTR OF GRAVITY from centerline of rotation	2'-1/4"	2"	2"
***VERTICAL CTR OF GRAVITY from mounting surface	34"	34'-1/4"	34'-1/4"

* Maximum Crane Rating (ft-lbs) is defined as that rated load (lbs) which when multiplied by its respective distance (ft) from centerline of rotation gives the greatest ft-lb value.

ANSI B30.22 Crane Rating (ft-lbs) = With all extensions retracted and inner plus outer boom in a horizontal position, rated load (lbs) X respective distance (ft) from centerline of rotation = nominal ft-lb value.

** Allow an additional 9" between the cab and crane base for swing clearance.

*** Crane in stowed position.

PERFORMANCE CHARACTERISTICS

ROTATION:	450°	30 seconds
INNER BOOM ELEVATION:	-52° to +68°	32 seconds
OUTER BOOM ARTICULATION:	126°	24 seconds
TELESCOPIC EXTENSIONS:		
1st Stage	45"	15 seconds
2nd Stage	51"	8 seconds
VERTICAL OUTRIGGER STROKE:	32"	7 seconds
POWER OUT OUTRIGGER:	49"	5 seconds

POWER SOURCE

Integral-mounted hydraulic pump and PTO application. Other standard power sources may be utilized - minimum power required is 28 horsepower.

CYLINDER HOLDING VALVES

The holding sides of all standard cylinders are equipped with integral-mounted counter-balance valves to prevent sudden cylinder collapse in case of hose or other hydraulic failure. The outrigger cylinders have positive, pilot-operated holding valves that open only on command.

The outer and extension cylinders have pilot-operated counter balance valves on both the extend and retract sides. The counter-balance valve serves several functions. First, it is a holding valve. Secondly, it is so constructed that it will control the lowering function and allow that motion to be feathered while under load. Finally, if a hose breaks, the only oil loss will be that in the hose.

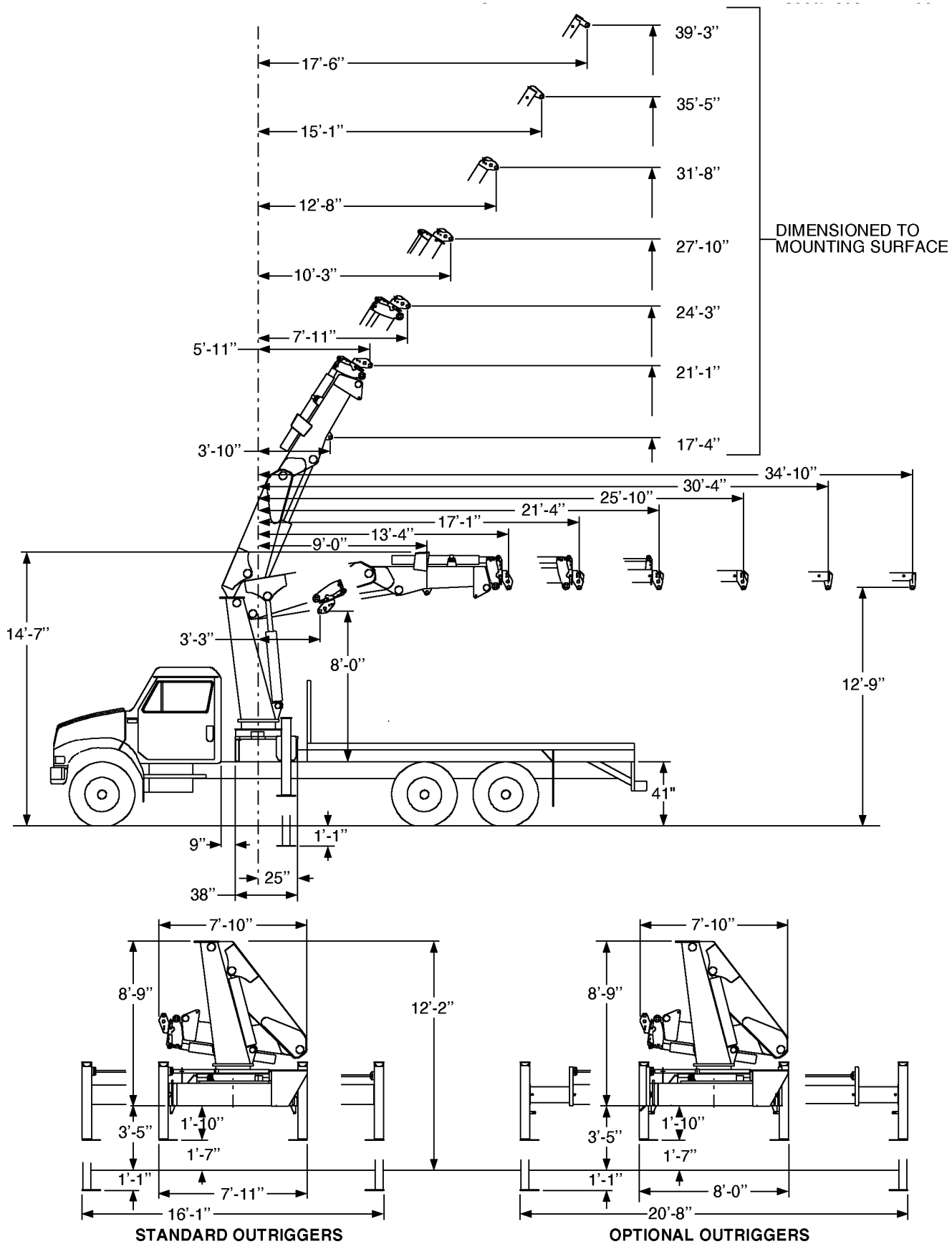
ROTATION SYSTEM

Rotation of the crane is accomplished through a turntable bearing, powered by a high torque hydraulic motor through a ring and pinion type spur gear train. A spring-loaded brake is supplied between the drive gear and the hydraulic drive motor providing rotational and parking brake action. Total gear reduction is 68.2 to 1.

HYDRAULIC SYSTEM

The hydraulic system is an open centered, full pressure system, requiring 16 GPM optimum oil flow, at 2500 PSI. Eight-spool, stack type control valve with dual operational control handles are located at both sides for convenient operation. System includes hydraulic oil reservoir, suction and return line filters, and control valvebank.

IMT reserves the right to change specifications and design without notice.

GEOMETRIC CONFIGURATION

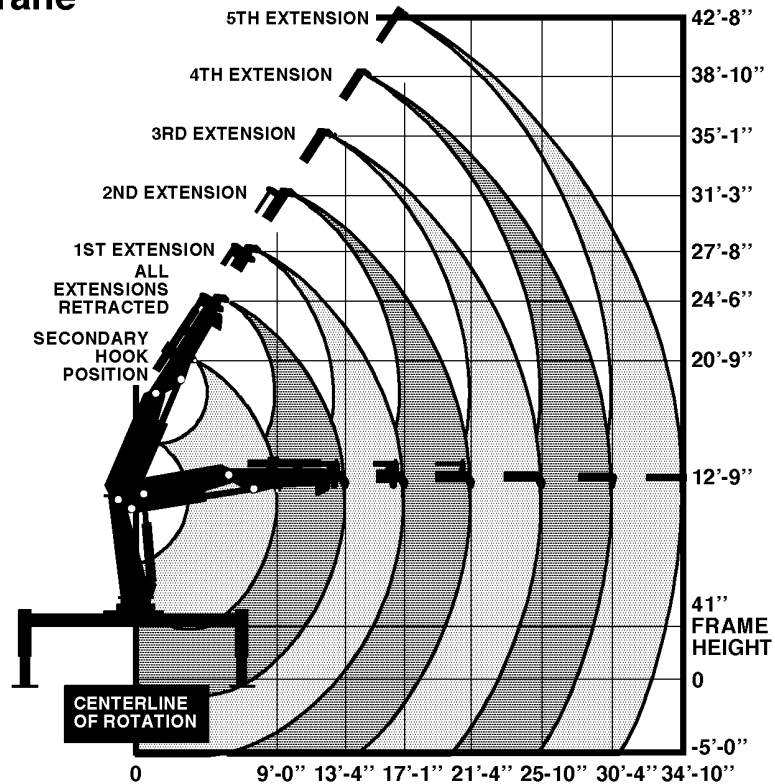
CAPACITY CHART

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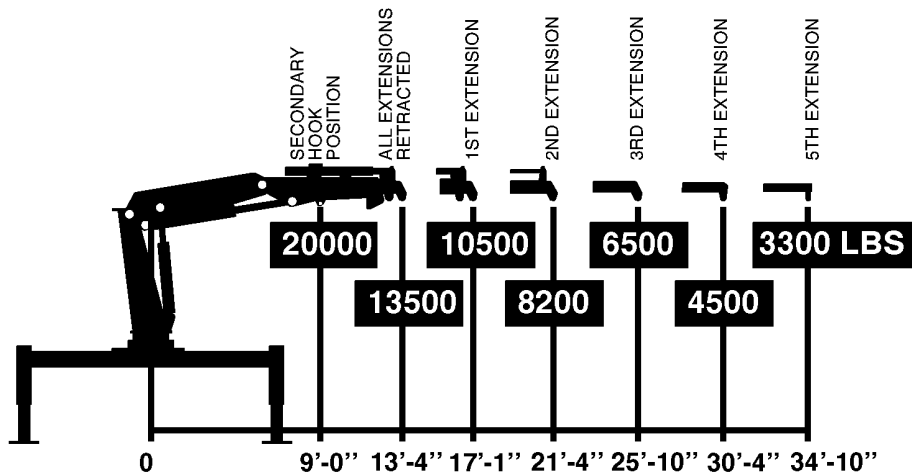
Capacities through geometric range are limited to those shown in horizontal position.

18000
Series Crane

- Loads shown are based on crane structural or hydraulic capability. Before lift is made, stability must be checked per SAE J765A.
- Working loads will be limited to those shown. Deduct the weight of load handling devices.
- Winch lifting capacity is limited to those shown - Maximum 9000 LBS for 1-part line.



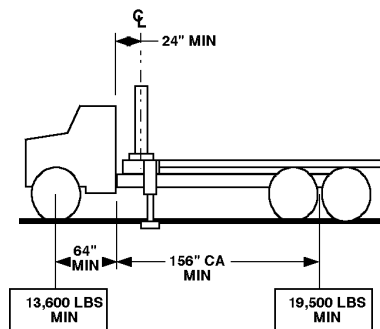
Use optional 12-ton hook in 9'-0" range.



MINIMUM CHASSIS SPECIFICATIONS FOR STANDARD 18000 SERIES CRANE

CRANE MOUNT	Behind Cab
CRANE WORKING AREA	360°
CHASSIS STYLE	Conventional Cab
FRONT AXLE RATING (GAWR)	16000 lbs
REAR AXLE RATING (GAWR)	40000 lbs Tandem Axle
WHEELBASE	220"
CAB-TO-AXLE	156"
RBM	2,860,000 in-lbs
FRAME SECTION MODULUS	26in ³
FRAME YIELD STRENGTH	110,000 PSI
MINIMUM FINISHED UNIT WEIGHT TO MAINTAIN VEHICLE STABILITY	
FRONT AXLE	13,600 lbs
REAR AXLE	19,500 lbs
TOTAL FINISHED UNIT WT.	33,100 lbs

360° WORKING AREA



Allows lifting full capacity load in a 360° arc when crane is installed immediately behind the cab. Great care should be taken when swinging the load from rear of vehicle to front of vehicle since the front axle springs will compress, thus affecting the levelness of the vehicle.

NOTES:

1. GAWR means Gross Axle Weight Rating and is dependent on all components of the vehicle such as axles, tires, wheels, springs, brakes, steering and frame strength meeting the manufacturer's recommendations. Always specify GAWR when purchasing a truck.
2. Minimum axle requirements may increase with use of diesel engines, longer wheelbase or service bodies. Contact the factory for further information.
3. Weight distribution calculations are required to determine final axle loading.
4. All chassis and crane combinations must be stability tested to ensure stability per ANSI B30.22



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MODEL 2595 CRANE SPECIFICATIONS

GENERAL SPECIFICATIONS

	2595-2H1M 25 ton-meters	2595-2H2M 25 ton-meters	2595-2H3M 25 ton-meters
CRANE RATING			
HORIZONTAL REACH from centerline of rotation	7.87m	9.25m	10.62m
HYDRAULIC EXTENSION	114/130cm	114/130cm	114/130cm
MANUAL EXTENSION	140cm	140/137cm	140/137/137cm
VERTICAL REACH from mounting surface	9.65m	10.80m	11.96m
VERTICAL REACH from ground / 1.04m frame ht.	10.69m	11.84m	13.00m
**BASE CRANE WEIGHT	3495 kg	3575 kg	3635 kg
OUTRIGGER SPAN (standard)	4.90m	4.90m	4.90m
OUTRIGGER SPAN (optional)	6.30m	6.30m	6.30m
OUTRIGGER PADS	30 x 30cm	30 x 30cm	30 x 30cm
CRANE STORAGE HEIGHT from mounting surface	2.67m	2.67m	2.67m
CRANE STORAGE HEIGHT from ground / 1.04m frame ht.	3.71m	3.71m	3.71m
*MOUNTING SPACE REQUIRED	97cm	97cm	97cm
ROTATIONAL TORQUE	3340 kg-m	3340 kg-m	3340 kg-m
OPTIMUM PUMP CAPACITY	61liters/min	61 liters/min	61 liters/min
SYSTEM OPERATING PRESSURE	172 bar	172 bar	172 bar
OIL RESERVOIR CAPACITY	100 liters	100 liters	100 liters
HOOK APPROACH - HORIZONTAL from centerline of rotation	99cm	99cm	99cm
HOOK APPROACH - VERTICAL from mounting surface	2.44m	2.44m	2.44m
***HORIZONTAL CTR OF GRAVITY from centerline of rotation	6cm	5cm	5cm
***VERTICAL CTR OF GRAVITY from mounting surface	86cm	87cm	87cm

* Allow an additional 23cm between the cab and crane base for swing clearance.

** Without outriggers, hydraulic oil reservoir and mounting accessories.

*** Crane in stowed position.

PERFORMANCE CHARACTERISTICS

ROTATION:	450°/7.85 rad	30 seconds
INNER BOOM ELEVATION:	-0.91 to +1.19 rad	32 seconds
OUTER BOOM ARTICULATION:	2.20 rad	24 seconds
TELESCOPIC EXTENSIONS:		
1st Stage	114cm	15 seconds
2nd Stage	130cm	8 seconds
VERTICAL OUTRIGGER STROKE:	81cm	7 seconds
POWER OUT OUTRIGGER:	124cm	5 seconds

POWER SOURCE

Integral-mounted hydraulic pump and PTO application. Other standard power sources may be utilized - minimum power required is 28 horsepower.

CYLINDER HOLDING VALVES

The holding sides of all standard cylinders are equipped with integral-mounted counter-balance valves to prevent sudden cylinder collapse in case of hose or other hydraulic failure. The outrigger cylinders have positive, pilot operated holding valves that open on command.

The outer and extension cylinders have pilot-operated counter balance valves on both the extend and retract sides. The counter-balance valve serves several functions. First, it is a holding valve. Secondly, it is so constructed that it will control the lowering function and allow that motion to be feathered while under load. Finally, if a hose breaks, the only oil loss will be that in the hose.

ROTATION SYSTEM

Rotation of the crane is accomplished through a turntable bearing, powered by a high torque hydraulic motor through a ring and pinion type spur gear train. A spring-loaded brake is supplied between the drive gear and the hydraulic drive motor providing rotational and parking brake action. Total gear reduction is 68.2 to 1.

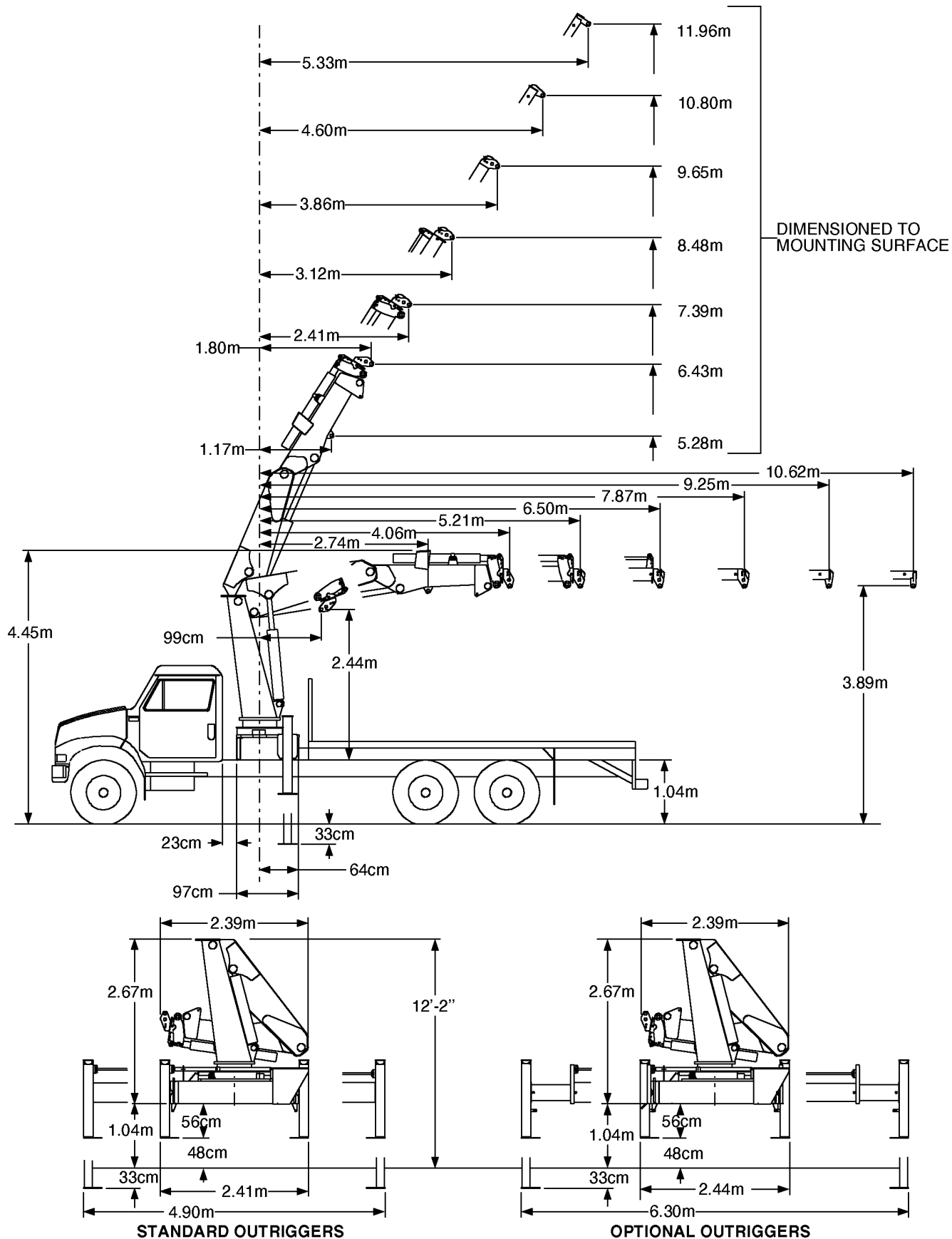
HYDRAULIC SYSTEM

The hydraulic system is an open centered, full pressure system, requiring 61 liter/minute optimum oil flow, at 172 bar. Eight-spool, stack type control valve with dual operational control handles are located at both sides for convenient operation. System includes hydraulic oil reservoir, suction and return line filters, and control valvebank.

SELECTED WEIGHTS OF ANCILLARY EQUIPMENT

OUTRIGGERS - 4.90m	474 kg
OUTRIGGERS - 6.30m	616 kg
HYDRAULIC OIL RESERVOIR	50 kg

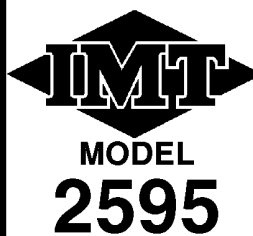
IMT reserves the right to change specifications and design without notice.

GEOMETRIC CONFIGURATION

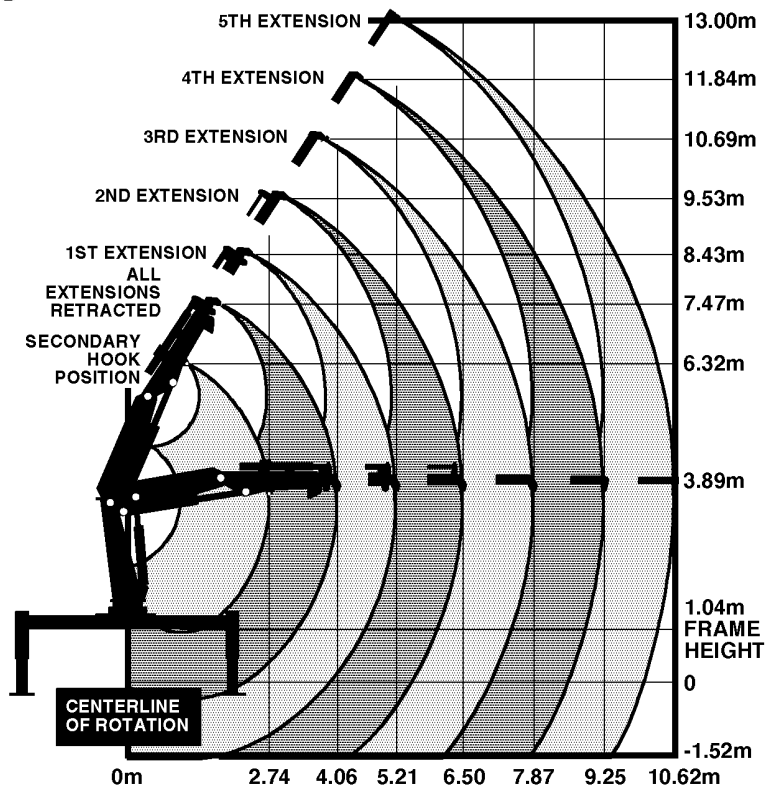
CAPACITY CHART

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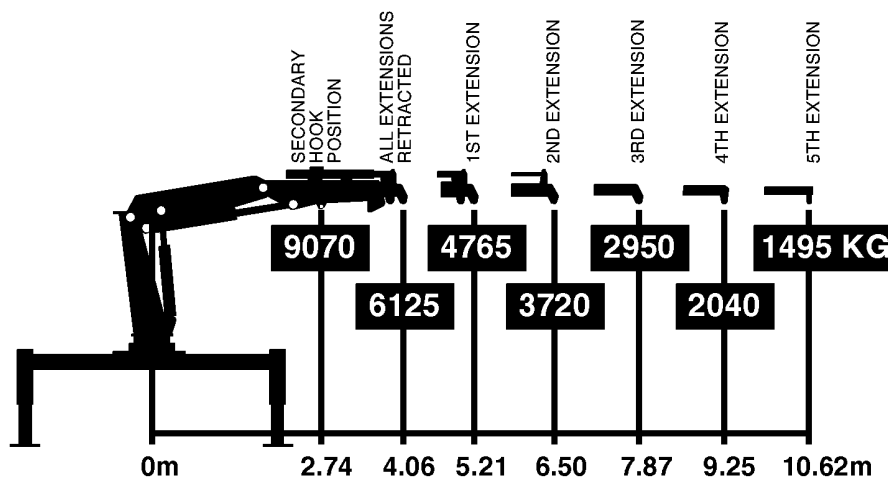
Capacities through geometric range are limited to those shown in horizontal position.



- Loads shown are based on crane structural or hydraulic capability. Before lift is made, stability must be checked per SAE J765A.
- Working loads will be limited to those shown. Deduct the weight of load handling devices.
- Winch lifting capacity is limited to those shown - Maximum 4080 KG for 1-part line.



Use optional 10,880 kg hook in 2.74m range.



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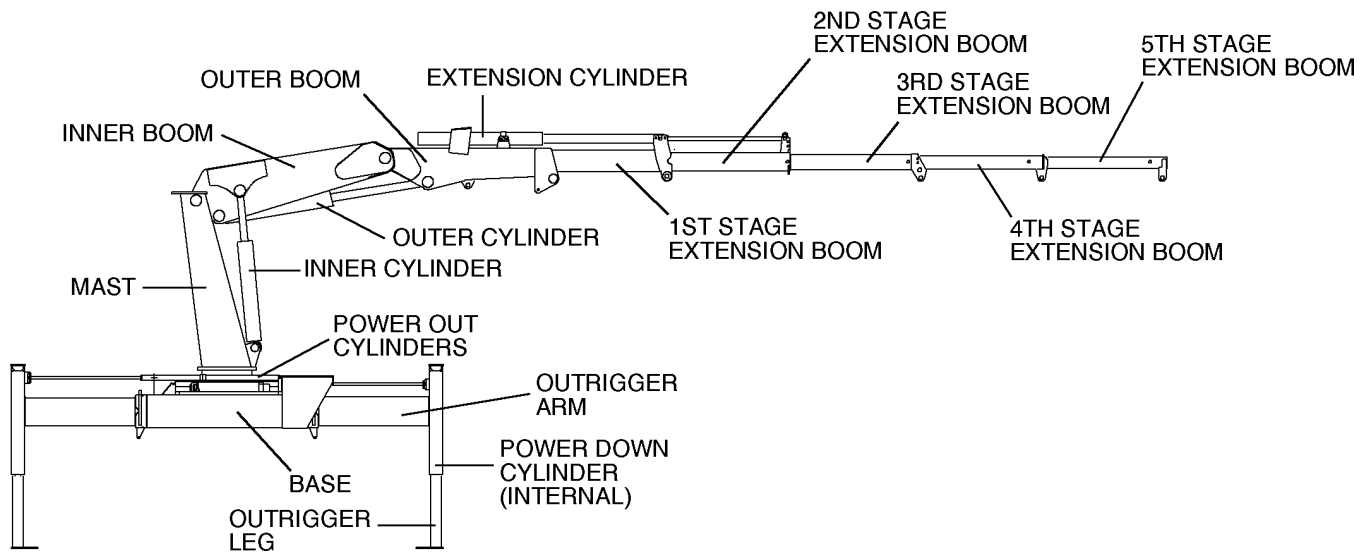
INSTALLATION7

CRANE MOUNTING7

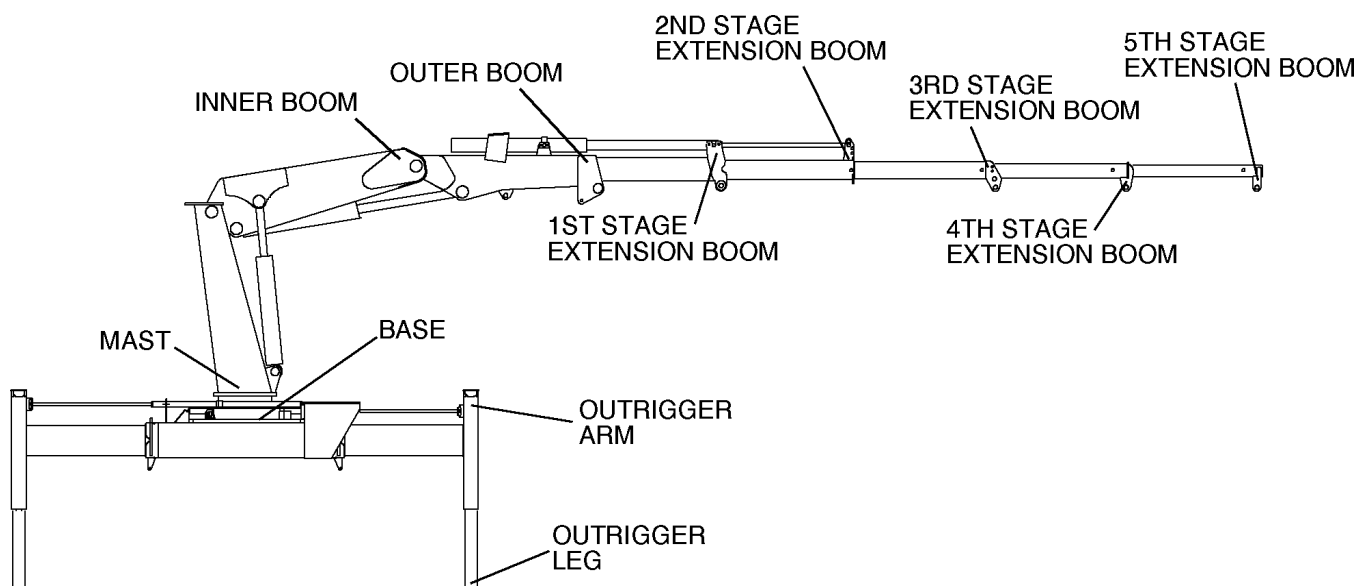
HYDRAULIC INSTALLATION8

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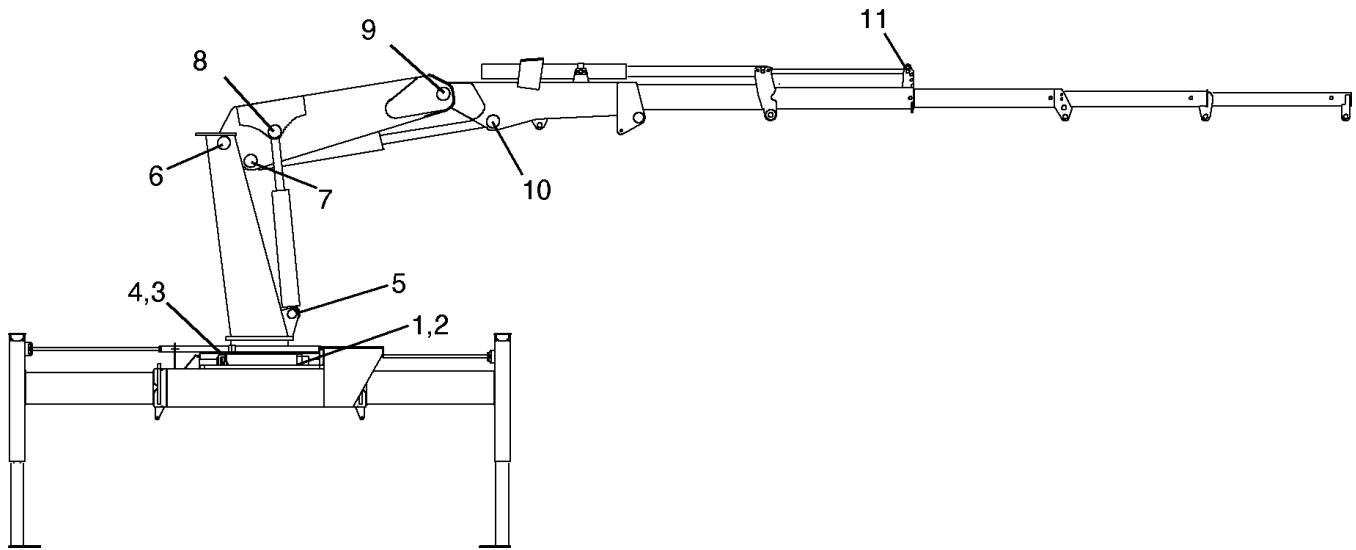


MAJOR CRANE ASSEMBLIES



WELDMENT PART NUMBER LOCATIONS

GREASE ZERK LOCATIONS & LUBRICANT REQUIREMENTS



ITEM	LOCATION DESCRIPTION	LUBRICANT	FREQUENCY
1.	TURNTABLE/BEARING GREASE EXTENSION	SHELL ALVANIA 2EP OR SHELL RETINAX "A"	WEEKLY
2.	*ROTATE CRANE WHILE GREASING		
3.	DRIVE GEAR GREASE EXTENSION		
4.	PINION GEAR		
5.	PINION COVER		
6.	INNER CYLINDER BASE PIN		
7.	MAST/INNER BOOM HINGE PIN		
8.	INNER CYLINDER ROD PIN		
9.	OUTER CYLINDER BASE		
10.	INNER BOOM/OUTER BOOM HINGE PIN		
11.	OUTER CYLINDER ROD		
	EXTENSION CYLINDER ROD		

NOTE: All application points must be greased weekly under normal work loads and moderate weather conditions. Under severe operating conditions, lubrication should be performed more frequently. See Volume 1; Operation, Maintenance and Repair for additional lubrication requirements.

RECOMMENDED SPARE PARTS LIST**1 YEAR SUPPLY****18000/2595 CRANE****FOR MANUAL: 99900920**

This spare parts list does not necessarily indicate that the items can be expected to fail in the course of a year. It is intended to provide the user with a stock of parts sufficient to keep the unit operating with the minimal down-time waiting for parts. There may be parts failures not covered by this list. Parts not listed are considered as not being Critical or Normal Wear items during the first year of operations and you need to contact the distributor or manufacturer for availability.

ASSEMBLY DESIGNATION	ITEM NO.	PART NO.	DESCRIPTION	QTY	CODE	SHELF LIFE (MO)	ORDER QTY
41713288.01.19971016	BASE & OUTRG ASM-16' PO/PD 450° ROTATION						
	17	60020124	BUSHING	1	W		
	18	60020123	THRUST WASHER	1	W		
	19	60020122	BUSHING	1	W		
	20	60020121	BUSHING	1	W		
	31	70034295	BEARING	1	W		
	34	60020120	BUSHING	1	W		
	42	71056073	PINION GEAR	1	W		
	43	71056374	BREAK	1	W		
	52	60030239	WEAR PAD	1	W		
	73	60030240	WEAR PAD	1	W		
	74	60030230	WEAR PAD	1	W		
41713289.01.19961030	BASE & OUTRG ASM-21' PO/PD 450° ROTATION						
	18	60020123	THRUST WASHER	1	W		
	19	60030204	WEAR PAD	1	W		
	20	60030205	WEAR PAD	1	W		
	31	70034295	BEARING	1	W		
	42	71056073	PINION GEAR	1	W		
	43	71056374	HYDRAULIC BRAKE	1	W		
	73	60030240	WEAR PAD	1	W		
	74	60030230	WEAR PAD	1	W		
	75	60030239	WEAR PAD	1	W		
	76	60020120	BUSHING	1	W		
	77	60020121	BUSHING	1	W		
	78	60020122	BUSHING	1	W		
	79	60020124	BUSHING	1	W		
3B055920.01.19961111	POWER OUT OUTRG CYLINDER						
	5	9B055920	SEAL KIT	2	W		
3B230920.01.19961111	POWER DOWN OUTRG CYLINDER						
	6	9B070920	SEAL KIT	2	W		
	19	73054794	VALVE-DBL PILOT OP	2	C		
41713291.01.19961111	MAST ASM-450° ROTATION						
	2	60020189	BUSHING	2	W		
41704201.01.19961111	INNER BOOM ASM						
	14	60020191	BUSHING	3	W		
3C357801.01.19961111	INNER CYLINDER						
	3	6H060030	HEAD	1	W		
	4	6I060200	PISTON	1	W		
	7	73054242	VALVE 25GPM	2	C		
	8	9C242432	SEAL KIT	2	W		
	20	60020190	BUSHING	2	W		
41704203.01.19961111	OUTER BOOM ASM						
	8	60020190	BUSHING	3	W		
	10	60030079	WEAR PAD	1	W		
3C353821.01.19961111	OUTER CYLINDER						
	3	6I070218	PISTON	1	W		
	4	6HX70035	HEAD	1	W		
	5	9C282835	SEAL KIT	2	W		
	15	73054242	VALVE 25GPM	2	C		
	17	60020191	BUSHING	3	W		
41704227.01.19961111	EXTENSION BOOM ASM-2H1M						
41704536.01.19961111	EXTENSION BOOM ASM-2H2M						
41704537.01.19961111	EXTENSION BOOM ASM-2H3M						
	24	60020198	ROLLER	2	W		
	25	60030036	WEAR PAD	2	W		
	26	60030006	WEAR PAD	1	W		
	27	60030032	WEAR PAD	2	W		
	28	60030075	WEAR PAD	2	W		
	29	60030076	WEAR PAD	1	W		
	30	60030077	WEAR PAD	1	W		
	31	60030078	WEAR PAD	1	W		

(CONTINUED)

RECOMMENDED SPARE PARTS LIST (CON'T)

ASSEMBLY DESIGNATION	ITEM NO.	PART NO.	DESCRIPTION	QTY	CODE	SHELF LIFE (MO)	ORDER QTY
3K130850.01.19961111	EXTENSION CYLINDER						
	2	6I130850	PISTON	1	W		
	9	6H032810	HEAD	1	W		
	15	6I030106	PISTON	1	W		
	22	6H032820	HEAD	1	W		
	28	73054242	VALVE 25GPM	2	C		
93712941.01.19961111	30	9X130850	SEAL KIT	1	W		
	INSTALLATION KIT						
91704450.01.19961111	REF	73052014	RETURN FILTER ELEMENT	6	P		
	REF	70048148	SUCTION FILTER ELEMENT	6	P		
91704451.01.19961111	HYDRAULIC KIT-6 FUNCTION						
	8	73054370	VALVE	1	C		
91711257.01.19970409	HYDRAULIC KIT-7 FUNCTION						
	33	73054370	VALVE	1	C		
91713227.01.19970409	HYDRAULIC KIT-8 FUNCTION						
	1	73054370	VALVE	1	C		
90713574.01.19961111	HYDRAULIC KIT-9 FUNCTION						
	1	73054370	VALVE	1	C		
51713429.01.19961111	PROPORTIONAL REMOTE CONTROL KIT 4R/4M						
	1	77041390	AMP DRIVER	1	C		
	10	77041251	RELAY	2	W		
	11	77041237	SOLENOID 12V	1	W		
51713570.01.19961111	PROPORTIONAL REMOTE HANDLE ASM						
	11	51707507	POTENTIOMETER	1	W		
	16	77040371	TOGGLE SWITCH SPST	1	W		
	17	77040372	TOGGLE SWITCH SPDT	6	W		
	18	77040373	TOGGLE SWITCH SPST	2	W		
31704209.01.19961111	CABLE ASM-JIC BOX 50"						
	3	77041345	TOGGLE SWITCH ST	2	W		
	4	77041354	TOGGLE SWITCH DT	1	W		
31704406.01.19961111	WINCH KIT						
	27	73054470	VALVE	1	C		
31704406.01.19961111	CABLE & HOOK KIT 9/16" X 80'						
	3	60107296	CABLE	1	W		
	7	70055024	BEARING	1	W		
	8	70055025	RACE	1	W		
	20	60020218	BUSHING	2	W		
	21	70034365	SHEAVE	1	W		

INSTALLATION

GENERAL

This section contains specific instructions for the installation of your crane. Prior to installing the crane and hydraulic components, make sure the chassis is ready to receive the crane (refer to VOLUME 1, Installation).

CRANE MOUNTING

1. See SPECIFICATIONS in Section 1 for crane weight. Using an overhead hoist and fabric slings of adequate capacity, lift the crane about a foot to see if the crane is adequately balanced. If not, lower hoist and adjust slings. Re-check balance and re-position crane until mounting surface is level.

2. Install the truck frame support so that the tie-down studs pass through the supports (See figure below). Cut the support to the inside dimensions of the truck frame. Allow about 1/16" (1.6mm) extra. Grind the end of the support to fit inside the frame channel. Use a hammer to drive it into position if necessary.

3. Allow sufficient clearance between the cab and crane base, at least 9" (22.9cm). Position the crane on the chassis per the applicable installation drawing, centering the mounting slots over the truck frame rails. While holding crane with hoist, start mounting hardware per figure below. Note position of support weldments on truck frame. Hand tighten nuts. Observe underside of crane base. No clearance between base and frame is allowed.

4. Torque the 1 1/4"-7 UNC Grade 5 mounting hardware to 840 ft-lbs (116 Kg-m). When torquing the mounting hardware the following precautions must be followed:

- A. Never use lock washers.
- B. Hardened washers must be used, and under the turning element, whether the turning element is the nut or the head of the bolt.
- C. Torque values specified are with residual oils or without special lubricants applied to the threads. If special lubricants are used, such as Never-Seize compound graphite and oil, molybdenum disulphite collodial copper or white lead, reduce torque values 10%. Torque values for threaded fasteners are not affected with the use of Loctite.

D. Do not use rusty fasteners, the rust will alter torque values significantly.

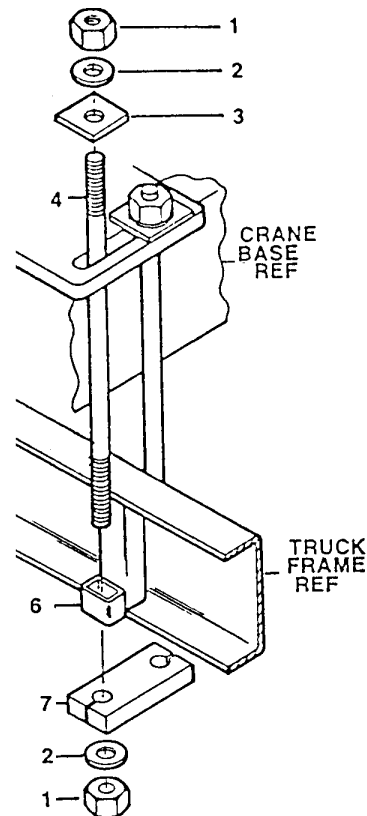
E. Touch-up paint around mounting anchor plates.

CAUTION

DO NOT ATTEMPT TO APPLY THE SAME TORQUE TO THE TIE ROD AND SELF-LOCKING NUTS AS SHOWN IN THE TORQUE DATA CHART. DO NOT EXCEED 840 FT-LBS (116 KG-M). EXCEEDING THIS TORQUE VALUE COULD DAMAGE EITHER THE CHASSIS OR CRANE BASE.

POWER WRENCHING IS NOT RECOMMENDED UNTIL THE LEAD THREAD OF THE NUT INSERT IS ENGAGED BY HAND TURNING.

5. Lay out and install hydraulic reservoir and hydraulic filter on truck frame.



ITEM	DESCRIPTION	QTY
1.	NUT-LOCKING	16
2.	WASHER-HI STR.	16
3.	SPACER	8
5.	TIE-DOWN STUD	8
6.	SUPPORT	4
7.	CLAMP PLATE	4

CRANE INSTALLATION

HYDRAULIC INSTALLATION

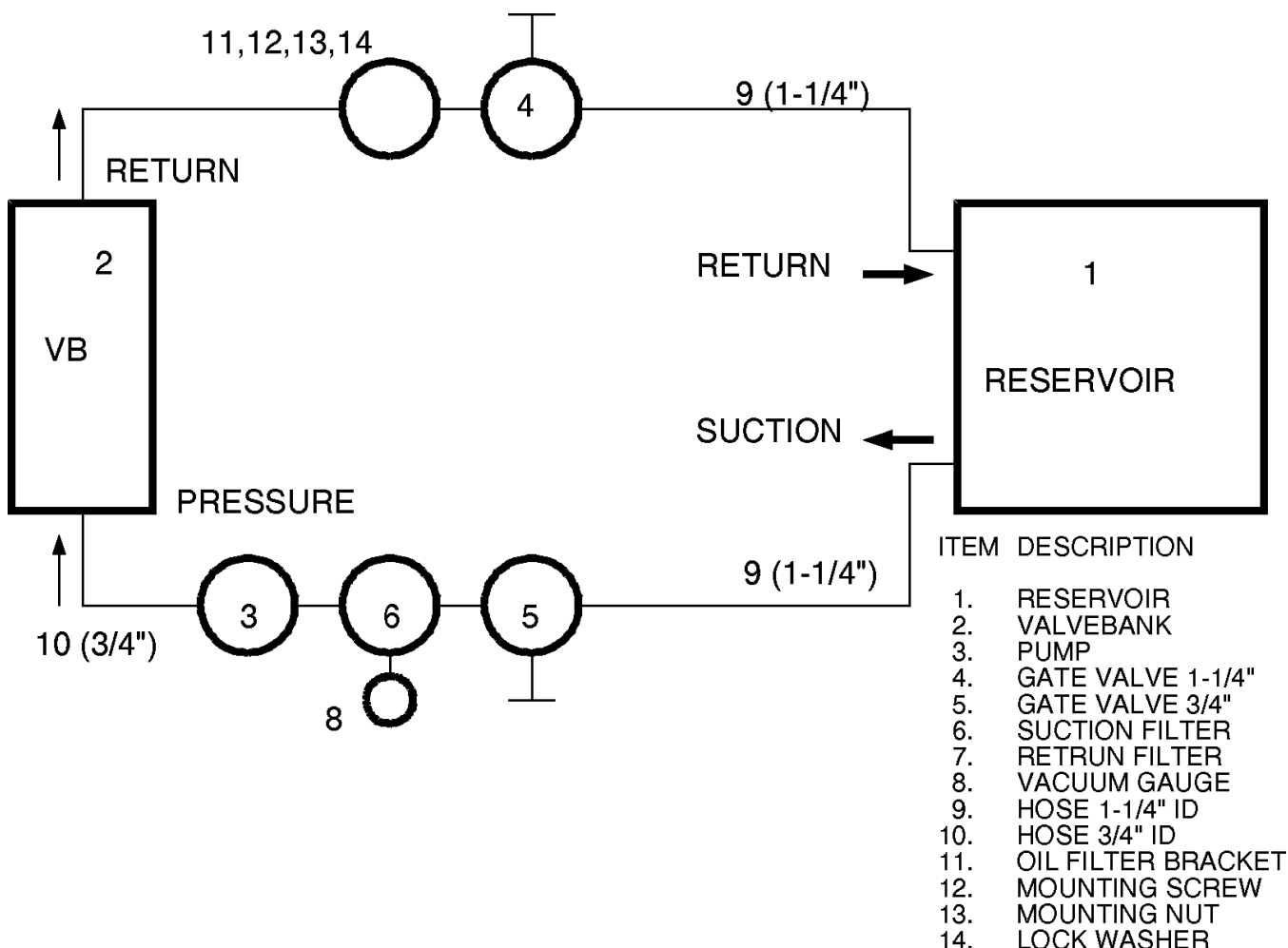
To install the hydraulic hoses, fittings, etc.:

1. Plumb the suction line filter as shown in figure below.
2. Install the suction hose between the suction line filter and the pump inlet. Tighten the hose clamps.
3. Install the pressure hose between the pump outlet and the inlet port on the valvebank.
4. Install the return line between the reservoir return line filter and valvebank (if applicable).
5. Fill the hydraulic oil reservoir.
6. Open the gate valve at the suction-line filter.

CAUTION

FAILURE TO OPEN THE GATE VALVE WILL RESULT IN A DRY RUNNING PUMP WHICH MAY DAMAGE THE PUMP.

7. Open the return gate valve.
8. Start the vehicle's engine and engage the PTO. Allow the system to run for about five minutes and then check the vacuum gauge on the suction-line filter (it should read 8" mercury or less). If the vacuum reading is too high, check to make certain that the gate valve is opened completely. If the valve is fully opened, check for a collapsed or restricted suction line.
9. Cycle all hydraulic functions. Check for leaks, and refill the reservoir if necessary.

**HYDRAULIC INSTALLATION**

SECTION 3. REPLACEMENT PARTS 18000/2595 CRANE

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VALVEBANK ASM 9-SECT RMT (51712578)	28
VALVEBANK (51712577)	28
VALVEBANK ASM 9-SECT MNL (51713230)	29
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REPLACEMENT PARTS 18000/2595 CRANE (CON'T)

PROP'L RMT CTRL KIT V20R 4R/4M (90713574)	32
PROP'L RMT HANDLE ASM (51713429)	33
CABLE ASM-JIC BOX 50" (51713570)	34
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PARTS INFORMATION

GENERAL

This section contains the exploded parts drawings and accompanying parts lists for the assemblies used on this crane. These drawings are intended to be used in conjunction with the instructions found in the REPAIR section in Volume 1. For optional equipment such as winches and remote controls, refer to the appropriate service manual.

WARNING

DO NOT ATTEMPT TO REPAIR ANY COMPONENT WITHOUT READING THE INFORMATION CONTAINED IN THE REPAIR SECTION IN VOLUME 1. PAY PARTICULAR ATTENTION TO STATEMENTS MARKED WARNING, CAUTION, OR NOTE IN THAT SECTION. FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN DAMAGE TO THE EQUIPMENT, PERSONAL INJURY, OR DEATH.

CRANE IDENTIFICATION

Every IMT crane has an identification placard (see figure) attached to the mast. When ordering parts, communicating warranty information, or referring to the unit in correspondence, always include the serial number and model numbers. All inquiries should be addressed to:

Iowa Mold Tooling Co., Inc.
Box 189, Garner, IA 50438-0189
Telephone: 515-923-3711
Technical Support Fax: 515-923-2424

 IOWA MOLD TOOLING CO., INC. BOX 189, GARNER, IA 50438-0189	
MODEL NUMBER	
SERIAL NUMBER	
MFG DATE	
70029119	

SERIAL NUMBER PLACARD

CYLINDER IDENTIFICATION

To insure proper replacement parts are received, it is necessary to specify the complete number/letter sequence for any part requested. Part numbers may be cross checked by comparing the stamped identification on the cylinder case (See figure below) against the information contained in the service manual. You must include the part number stamped on the cylinder case when ordering parts.

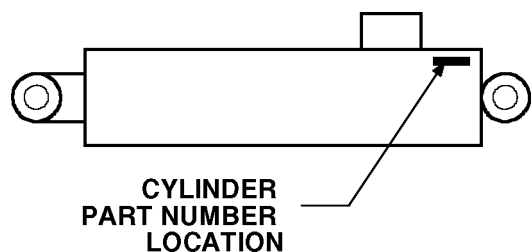
WELDMENT IDENTIFICATION

Each of the major weldments - base, mast, inner boom, outer boom, extension boom and outrigger weldments bear a stamped part number. Any time a major weldment is replaced, you must specify the complete part number as stamped on the weldment. The locations of the part numbers are shown in Section 2.

ORDERING REPAIR PARTS

When ordering replacement parts:

1. Give the model number of the unit.
2. Give the serial number of the unit.
3. Specify the complete part number. When ordering cylinder parts, or one of the main weldments, always give the stamped part number.
4. Give a complete description of the part.
5. Specify the quantity required.



CYLINDER PART NUMBER LOCATION

BASE & OUTRIGGER ASM-16' PO/PD - 450° ROT'N(41713288-1)

ITEM	PART NO.	DESCRIPTION	QTY
1.	72060002	CAP SCR 1/4-20X3/4 HH GR5	2
2.	72060091	CAP SCR 1/2-13X1 HH GR5	6
3.	72060857	SCR 5/16-18X5/8 HH SLFTPG	2
4.	72062080	NUT 1/2-13 LOCK	6
5.	72062179	NUT 3/8-16 CTR LOCK	4
6.	72063003	WASHER 3/8 WRT	2
7.	60104977	PIN	2
8.	52711086	OUTRIGGER LEG	2
9.	52713290	BASE W/450° ROTATION (INCL: 17,19,20,34,72)	1
	52711089	BASE	1
10.	53000717	GREASE EXTENSION 32"	1
11.	52711151	OUTRIGGER ARM RH	1
12.	52711152	OUTRIGGER ARM LH	1
13.	53000713	GREASE EXTENSION 36"	1
14.	72060023	CAP SCR 5/16-18X3/4 HH GR5	2
15.	72063050	WASHER 5/16 LOCK	8
16.	60116570	COVER-INT GEAR	1
17.	60020124	BUSHING (PART OF 9)	1REF
18.	60020123	THRUST WASHER	1
19.	60020122	BUSHING (PART OF 9)	1REF
20.	60020121	BUSHING (PART OF 9)	1REF
21.	60105874	PIN RETAINER PLATE 2"	4
22.	60105964	PINION SUPPORT PLT (INCL:31)	1
23.	60106032	STUD 1/2-13X2	2
24.	60010844	GREASE PLATE	1
25.	60118700	SPACER PLATE	1
26.	60114015	SPACER PLATE	1
27.	60116571	INSPECTION COVER	1
28.	60118702	SHIM-WEAR PAD	1AR
29.	60118701	SHIM-WEAR PAD	1AR
30.	60114043	SHIM-WEAR PAD	1AR
31.	70034295	BEARING (PART OF 22)	1REF
32.	60114417	SHIM-WEAR PAD	1AR
33.	51707855	RSRVR ASM (INCL:35,38-40,44)	1
34.	60020120	BUSHING (PART OF 9)	1REF
35.	52703357	RESERVOIR (PART OF 33)	1REF
36.	72060021	CAP SCR 5/16-18X1/2 HH GR5	6
37.	70056188	TURNTABLE GEAR BEARING	1
	TO 5-31-94/SERIAL #18026F1794052		
	70055167	TURNTABLE GEAR BEARING	1
	FROM 6-1-94		
38.	72532261	SIGHT GAUGE 3/4NPT (PART OF 33)	1REF
39.	73014671	FILL CAP (PAR OF 33)	1REF
40.	73052001	PLUG 3/4NPT SQHD MAGNETIC (PART OF 33)	1REF
41.	71056072	INTERMEDIATE GEAR	1
42.	71056073	PINION GEAR	1
43.	71056374	HYD BRAKE (INCL: 63,64)	1
44.	73141276	SCREEN (PART OF 33)	1REF
46.	72053281	STREET ELBOW 1/8NPT 90°	1
47.	72053301	COUPLING 1/8NPT	2
48.	72053508	ZERK 1/8NPT	4
49.	72060092	CAP SCR 1/2-13X1-1/4 HH GR5	6
50.	72060101	CAP SCR 1/2-13X5	2
51.	72060099	CAP SCR 1/2-13X4 HH GR5	2
52.	60030239	WEAR PAD	1
53.	72060926	CAP SCR 3/8-16X7 HH GR5	4

CONTINUED

54.	72063132	WASHER 1/2 FLAT	12
55.	72060093	CAP SCR 1/2-13X1-1/5 HH GR5	2
56.	72601026	SCR 3/8-16X1/2 FLTHD SOC	2
57.	72063039	MACH BUSHING 2X10GA NR	1
58.	72063049	WASHER 1/4 LOCK	2
59.	72063053	WASHER 1/2 LOCK	2
60.	72063115	WASHER 7/8 FLAT HARD	23
61.	72066095	RETAINING RING 2" EXT STD	1
62.	72066132	RETAINING RING 1-1/2 HD	4
63.	76391498	GASKET (PART OF 43)	1REF
64.	76391497	GASKET (PART OF 43)	1REF
65.	72601037	CAP SCR 9/16-12X4-1/2 HHGR8	2
66.	72601144	CAP SCR 9/16-12X2 HH GR8	4
67.	72601148	CAP SCR 7/8-9X3 HH GR8	23
	TO 5-31-94/SERIAL #18026F1794052		
	72601472	CAP SCR 7/8-9X4-1/2 HHGR8	23
	FROM 6-1-94		
68.	3B055920	CYLINDER	2
69.	3B230920	CYLINDER	2
70.	73051223	HYDRAULIC MOTOR	1
71.	72063117	WASHER 9/16 FLAT HARD	6
72.	71056074	DRIVE GEAR (PART OF 9)	1REF
73.	60030240	WEAR PAD	1
74.	60030230	WEAR PAD	1
75.	60118703	SHIM-WEAR PAD	2AR
76.	60118704	SHIM-WEAR PAD	2AR
77.	71143520	ROTATION STOP SLIDE 450° (USED WITH 41713288 ONLY)	1
78.	70034417	CLAMP	2
79.	70144819	COVER PLATE	2
80.	72060037	CAP SCR 5/16-18X4 HHGR5	2
81.	72062109	NUT 5/16-18 LOCK	2

WARNING

ANYTIME A GEAR-BEARING BOLT IS REMOVED, IT MUST BE REPLACED WITH A NEW BOLT OF THE IDENTICAL GRADE AND SIZE. FAILURE TO REPLACE GEAR-BEARING BOLTS MAY RESULT IN BOLT FAILURE DUE TO METAL FATIGUE, CAUSING SERIOUS INJURY OR DEATH.

CAUTION

BEFORE TIGHTENING TURNTABLE BEARING BOLTS, REFER TO THE TURNTABLE BEARING FASTENER TIGHTENING SEQUENCE AND TORQUE DATA CHART IN THE REFERENCE SECTION.

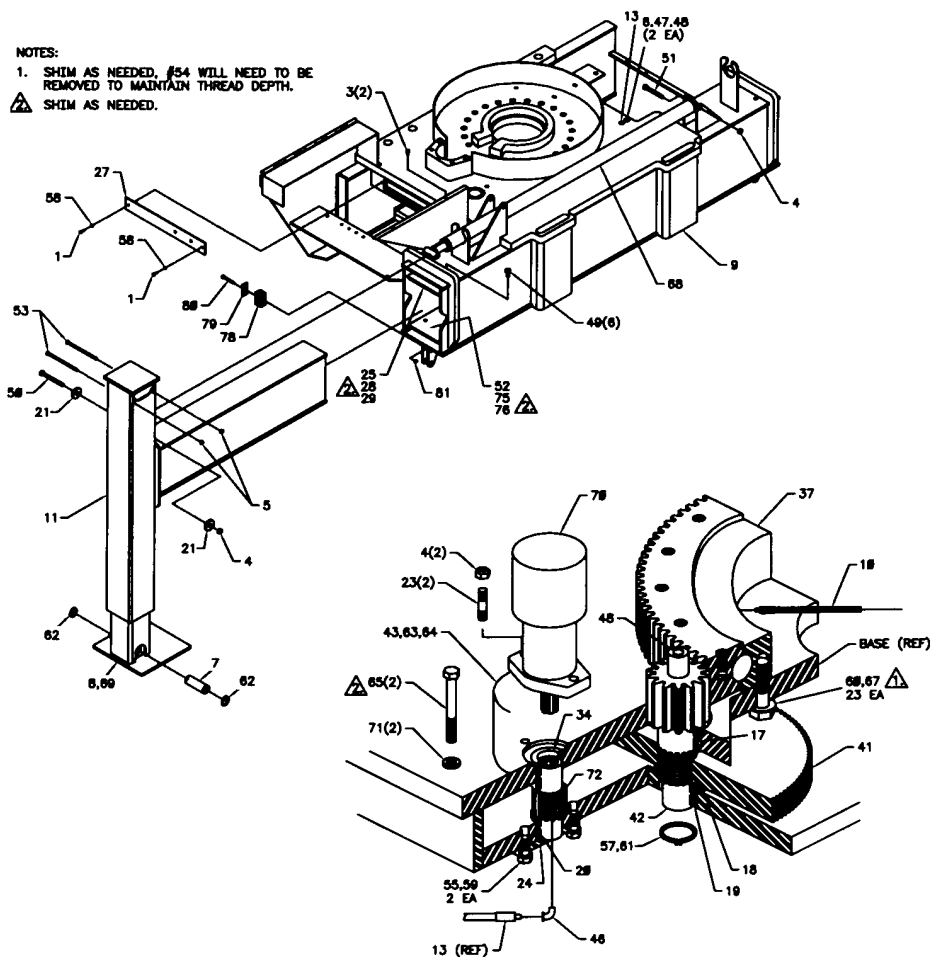
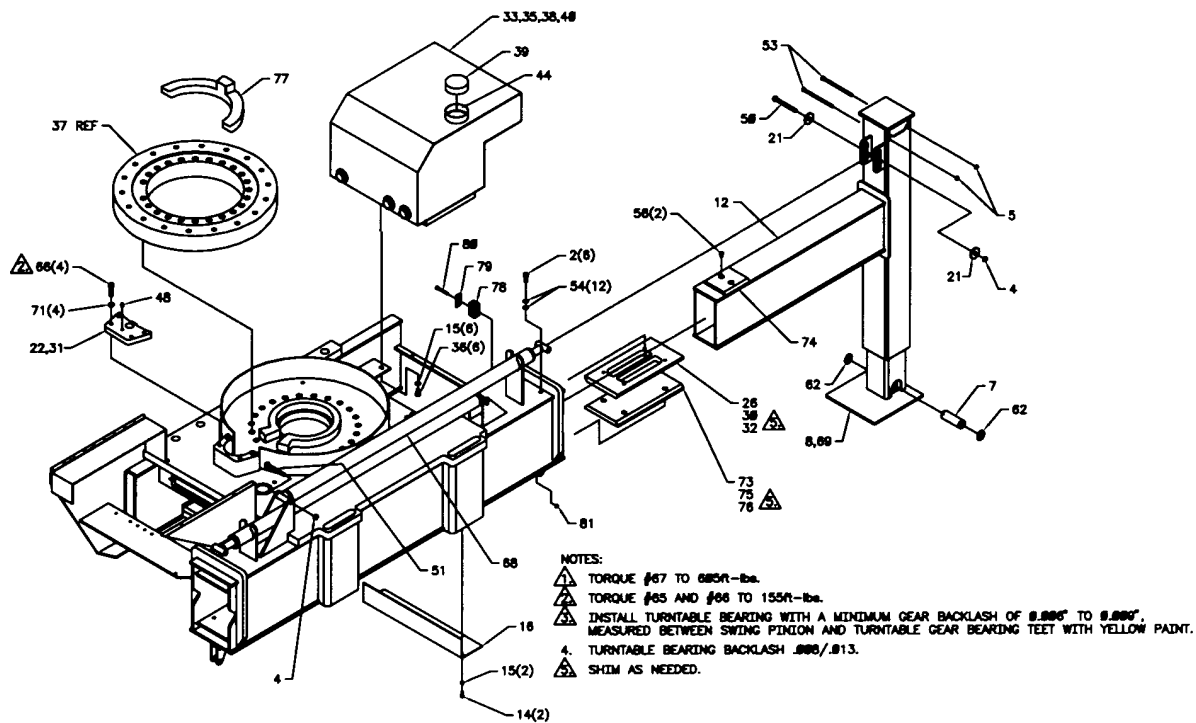
NOTE

ANYTIME THE PIN RETAINER PLATE BOLTS HAVE BEEN REMOVED, APPLY LOCTITE 262 TO THE THREADS BEFORE REASSEMBLY.

NOTES:

- TORQUE ITEMS 65 & 66 TO 155 FT-LBS(21.4 KG-M).
- TORQUE ITEM 67 TO 605 FT-LBS (83.7 KG-M).
- SHIM ITEMS 25, 26, 52 & 73 AS NEEDED.
- TURNTABLE BEARING BACKLASH=.008-.013" (.203-330mm)

BASE & OUTRIGGER ASM-16' PO/PD-450° ROT'N(41713288-2)



BASE & OUTRIGGER ASM-21' PO/PD-450° ROT'N(41713289-1)

ITEM	PART NO.	DESCRIPTION	QTY
1.	72060002	CAP SCR 1/4-20X3/4 HH GR5	2
2.	72060091	CAP SCR 1/2-13X1 HH GR5	6
3.	72060857	SCR 5/16-18X5/8 HH SLFTPG	2
4.	72062080	NUT 1/2-13 LOCK	6
5.	72062179	NUT 3/8-16 CTR LOCK	4
6.	72066141	HAIR PIN 1/16	4
7.	60104977	PIN	2
8.	52711086	OUTRIGGER LEG	2
9.	52713290	BASE W/450° ROTATION (INCL: 72,76-79)	1
	52711089	BASE	1
10.	52711091	OUTRIGGER LEG-MNL OUT	2
11.	52711087	OUTRIGGER ARM RH	1
12.	52711088	OUTRIGGER ARM LH	1
13.	52709786	PIN	2
14.	72060023	CAP SCR 5/16-18X3/4 HH GR5	2
15.	72063050	WASHER 5/16 LOCK	8
16.	60116570	COVER-INT GEAR	1
17.	52710218	PIN	4
18.	60020123	THRUST WASHER	1
19.	60030204	WEAR PAD	1
20.	60030205	WEAR PAD	1
21.	60105874	PIN RETAINER PLATE 2"	4
22.	60105964	PINION SUPPORT PLT (INCL: 31)	1
23.	60106032	STUD 1/2-13X2	2
24.	60010844	GREASE PLATE	1
25.	60118700	SPACER PLATE	1
26.	60114015	SPACER PLATE	1
27.	60116571	INSPECTION COVER	1
28.	60118701	SHIM-WEAR PAD	1AR
29.	60118702	SHIM-WEAR PAD	1AR
30.	60114043	SHIM-WEAR PAD	1AR
31.	70034295	BEARING (PART OF 22)	1REF
32.	60114417	SHIM-WEAR PAD	1AR
33.	51707855	RSRVR ASM (INCL:35,38-40,44)	1
34.	60114923	TUBE-LINK	2
35.	52703357	RESERVOIR (PART OF 33)	1REF
36.	72060021	CAP SCR 5/16-18X1/2 HH GR5	6
37.	70056188	TURNTABLE GEAR BEARING	1
	TO 5-31-94/SERIAL #18026F1794052		
	70055167	TURNTABLE GEAR BEARING	1
	FROM 6-1-94		
38.	72532261	SIGHT GAUGE 3/4NPT (PART OF 33)	1REF
39.	73014671	FILL CAP (PART OF 33)	1REF
40.	73052001	PLUG 3/4NPT SQHD MAGNETIC (PART OF 33)	1REF
41.	71056072	INTERMEDIATE GEAR	1
42.	71056073	PINION GEAR	1
43.	71056374	HYD BRAKE (INCL: 63,64)	1
44.	73141276	SCREEN (PART OF 33)	1REF
45.	72062109	NUT 5/16-18 LOCK	4
46.	72053281	STREET ELBOW 1/8NPT 90°	1
47.	72053301	COUPLING 1/8NPT	2
48.	72053508	ZERK 1/8NPT	4
49.	72060092	CAP SCR 1/2-13X1-1/4 HH GR5	6
50.	72060101	CAP SCR 1/2-13X5	2
51.	72060099	CAP SCR 1/2-13X4 HH GR5	2
52.	72066145	HAIR PIN .19	2
53.	72060926	CAP SCR 3/8-16X7 HH GR5	4
54.	72063132	WASHER 1/2 FLAT	12
55.	72060093	CAP SCR 1/2-13X1-1/5 HH GR5	2
56.	72601026	SCR 3/8-16X1/2 FLTHD SOC	2
57.	72063039	MACH BUSHING 2X10GA NR	1
58.	72063049	WASHER 1/4 LOCK	2
59.	72063053	WASHER 1/2 LOCK	2
60.	72063115	WASHER 7/8 FLAT HARD	23

CONTINUED

61.	72066095	RETAINING RING 2" EXT STD	1
62.	72066132	RETAINING RING 1-1/2 HD	46
3.	76391498	GASKET (PART OF 43)	1REF
64.	76391497	GASKET (PART OF 43)	1REF
65.	72601037	CAP SCR 9/16-12X4-1/2 HHGR8	2
66.	72601144	CAP SCR 9/16-12X2 HH GR8	4
67.	72601148	CAP SCR 7/8-9X3 HH GR8	23
	TO 5-31-94/SERIAL #18026F1794052		
	72601472	CAP SCR 7/8-9X4-1/2 HHGR8	23
	FROM 6-1-94		
68.	3B055920	CYLINDER	2
69.	3B070920	CYLINDER	2
70.	73051223	HYDRAULIC MOTOR	1
71.	72063117	WASHER 9/16 FLAT HARD	6
72.	71056074	DRIVE GEAR (PART OF 9)	1REF
73.	60030240	WEAR PAD	1
74.	60030230	WEAR PAD	1
75.	60030239	WEAR PAD	1
76.	60020120	BUSHING (PART OF 9)	1REF
77.	60020121	BUSHING (PART OF 9)	1REF
78.	60020122	BUSHING (PART OF 9)	1REF
79.	60020124	BUSHING (PART OF 9)	1REF
80.	53000713	GREASE EXTENSION 36"	1
81.	53000717	GREASE EXTENSION 32"	1
82.	72063003	WASHER 3/8 WRT	2
83.	60118703	SHIM-WEAR PAD	2AR
84.	60118704	SHIM-WEAR PAD	2AR
85.	70034417	CLAMP	4
86.	70144819	COVER PLATE	4
87.	72060031	CAP SCR 5/16-18X2-1/2 HHGR5	2
88.	71143520	ROTATION STOP SLIDE 450° (USED WITH 41713288 ONLY)	1
89.	72060037	CAP SCR 5/16-18X4 HHGR5	2

WARNING

ANYTIME A GEAR-BEARING BOLT IS REMOVED, IT MUST BE REPLACED WITH A NEW BOLT OF THE IDENTICAL GRADE AND SIZE. FAILURE TO REPLACE GEAR-BEARING BOLTS MAY RESULT IN BOLT FAILURE DUE TO METAL FATIGUE, CAUSING SERIOUS INJURY OR DEATH.

CAUTION

BEFORE TIGHTENING TURNTABLE BEARING BOLTS, REFER TO THE TURNTABLE BEARING FASTENER TIGHTENING SEQUENCE AND TORQUE DATA CHART IN THE REFERENCE SECTION.

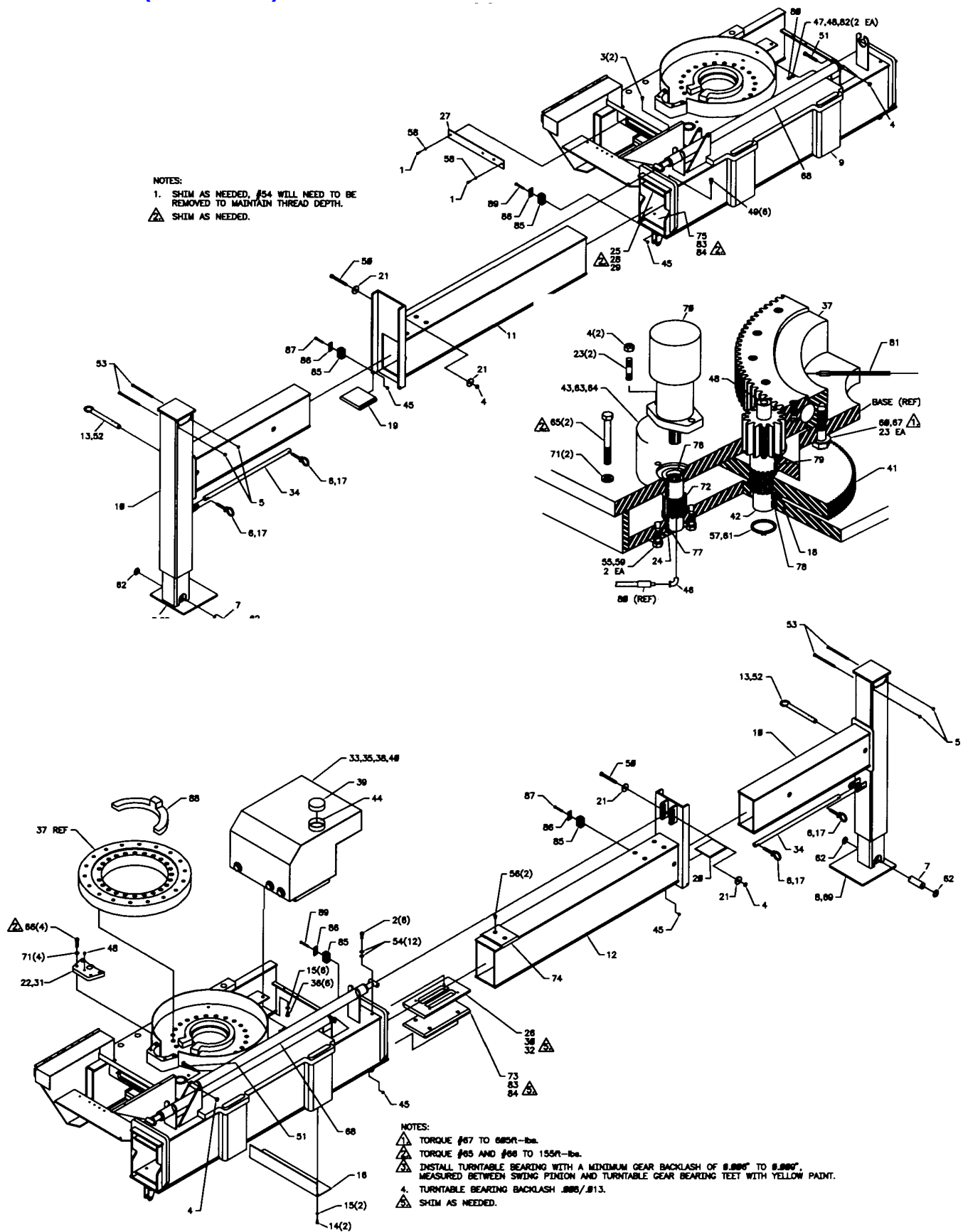
NOTE

ANYTIME THE PIN RETAINER PLATE BOLTS HAVE BEEN REMOVED, APPLY LOCTITE 262 TO THE THREADS BEFORE REASSEMBLY.

NOTES:

- TORQUE ITEMS 65 & 66 TO 155 FT-LBS(21.4 KG-M).
- TORQUE ITEM 67 TO 605 FT-LBS (83.7 KG-M).
- SHIM ITEMS 25, 26, 52 & 73 AS NEEDED.
- TURNTABLE BEARING BACKLASH=.008-.013" (.203-330mm)

BASE & OUTRIGGER ASM-21' PO/PD- 450° ROT'N(41713289-2)



PWR OUT OUTRIGGER CYLINDER (3B055920)

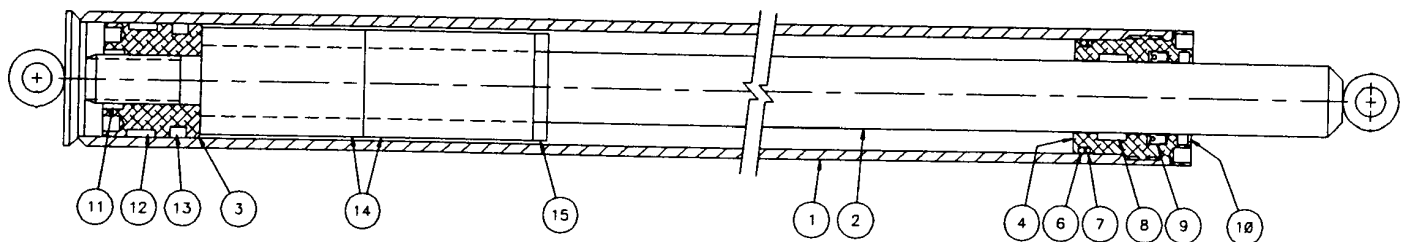
ITEM	PART NO.	DESCRIPTION	QTY
1.	4B055920	CASE ASM	1
2.	4G055920	ROD ASM	1
3.	6I201088	PISTON	1
4.	6H020012	HEAD	1
5.	9B055920	SEAL KIT (INCL:6-13,15)	1
6.	7Q072224	O-RING (PART OF 5)	1REF
7.	7Q10P224	BACKUP RING (PART OF 5)	1REF
8.	7T2N8012	WEAR RING (PART OF 5)	1REF
9.	7R546012	U-CUP SEAL (PART OF 5)	1REF
10.	7R14P012	ROD WIPER (PART OF 5)	1REF
11.	7T61N087	LOCK RING (PART OF 5)	1REF
12.	7T2N4020	WEAR RING (PART OF 5)	1REF
13.	7T66P200	PISTON SEAL (PART OF 5)	1REF
14.	6C300012	STOP TUBE 3"	2
15.	6A025012	WAFFER LOCK (PART OF 5)	1REF

NOTE

IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.



PWR DN OUTRIGGER CYLINDER (3B230920)

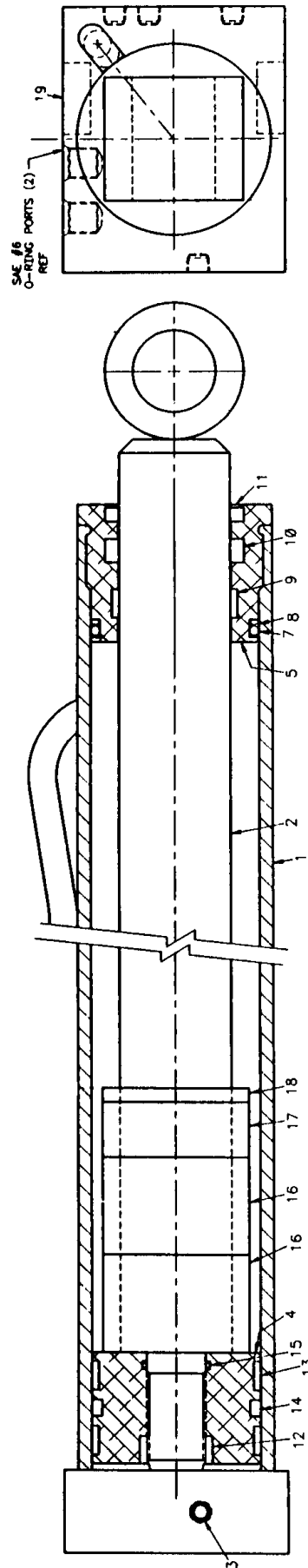
ITEM	PART NO.	DESCRIPTION	QTY
1.	4B230920	CASE ASM (INCL:3)	1
2.	4G230920	ROD ASM	1
3.	7PNPXT02	PLUG 1/8NPT (PART OF 1)	4REF
4.	6I302106	PISTON	1
5.	6H030020	HEAD	1
6.	9B070920	SEAL KIT (INCL:7-15,18)	1
7.	7Q072334	O-RING (PART OF 6)	1REF
8.	7Q10P334	BACKUP RING (PART OF 6)	1REF
9.	7T2N4022	WEAR RING (PART OF 6)	1REF
10.	7R546020	U-CUP SEAL (PART OF 6)	1REF
11.	7R14P020	ROD WIPER (PART OF 6)	1REF
12.	7T61N106	LOCK RING (PART OF 6)	1REF
13.	7T2N4030	WEAR RING (PART OF 6)	2REF
14.	7T66P300	PISTON SEAL (PART OF 6)	1REF
15.	7Q072121	O-RING (PART OF 6)	1REF
16.	6C300020	STOP TUBE 3"	2
17.	6C075020	STOP TUBE 3/4"	1
18.	6A025020	WAFER LOCK (PART OF 6)	1REF
19.	73054794	VALVE-DBL PILOT OP	1

NOTE

IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.



MAST ASM-450° (41713291)

ITEM	PART NO.	DESCRIPTION	QTY
1.	52713292	OPTIONAL MAST-450° (INCL: 3)	1
2.	60020189	BUSHING (PART OF 1)	2REF
3.	60104246	PINION COVER	1
4.	70029119	SERIAL NUMBER PLACARD	1
5.	72601468	CAP SCR 3/4-10X4-1/2 HHGR8	18
6.	72063116	WASHER 3/4 HARD GR8	18
7.	72066340	POP RIVET 1/8	2

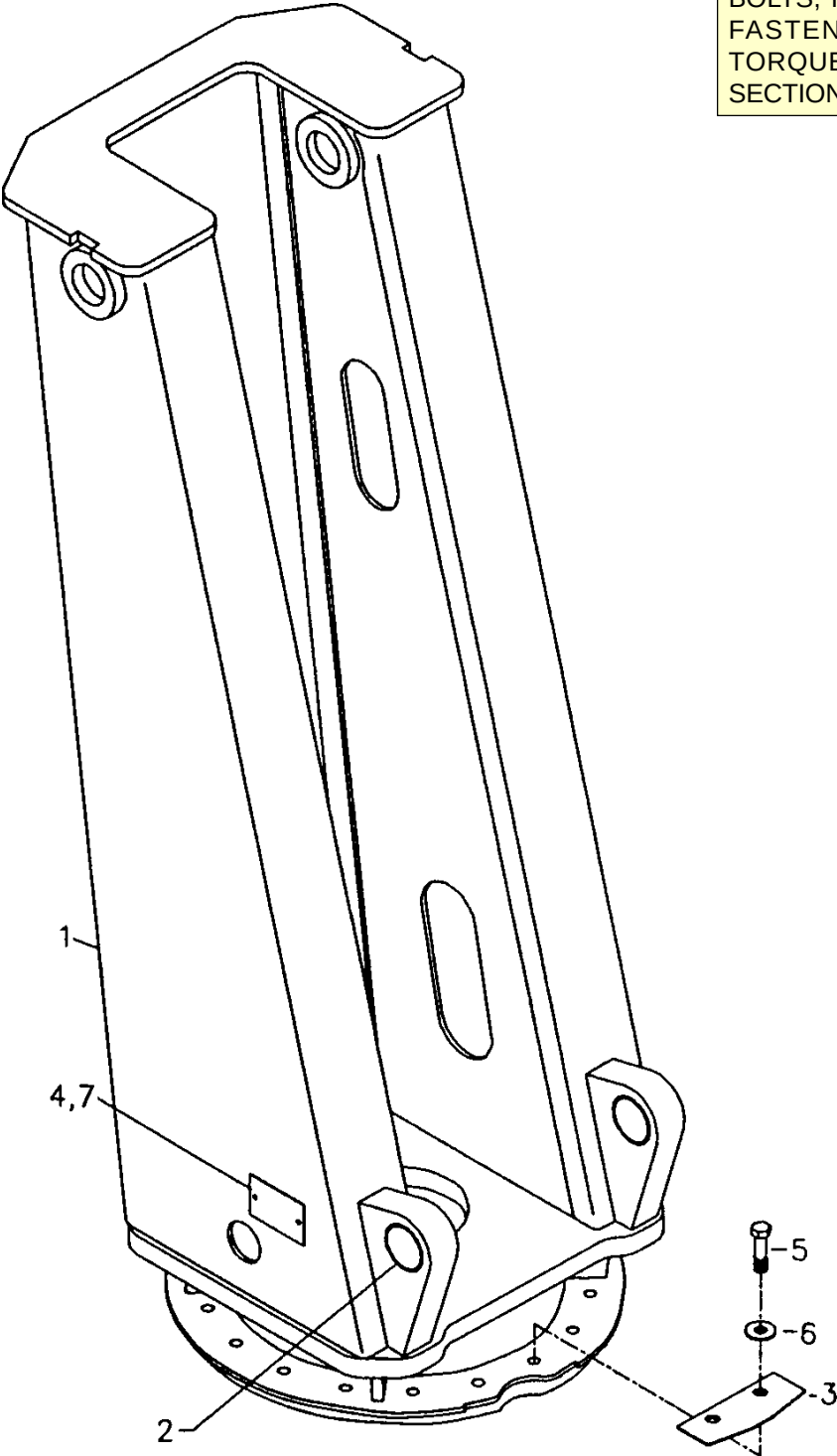
NOTE: TORQUE ITEM 5 TO 375 FT-LBS (51.9 KG-M).

WARNING

ANYTIME A GEAR-BEARING BOLT IS REMOVED, IT MUST BE REPLACED WITH A NEW BOLT OF THE IDENTICAL GRADE AND SIZE. FAILURE TO REPLACE GEAR-BEARING BOLTS MAY RESULT IN BOLT FAILURE DUE TO METAL FATIGUE, CAUSING SERIOUS INJURY OR DEATH.

CAUTION

BEFORE TIGHTENING TURNTABLE BEARING BOLTS, REFER TO THE TURNTABLE BEARING FASTENER TIGHTENING SEQUENCE AND TORQUE DATA CHART IN THE REFERENCE SECTION.

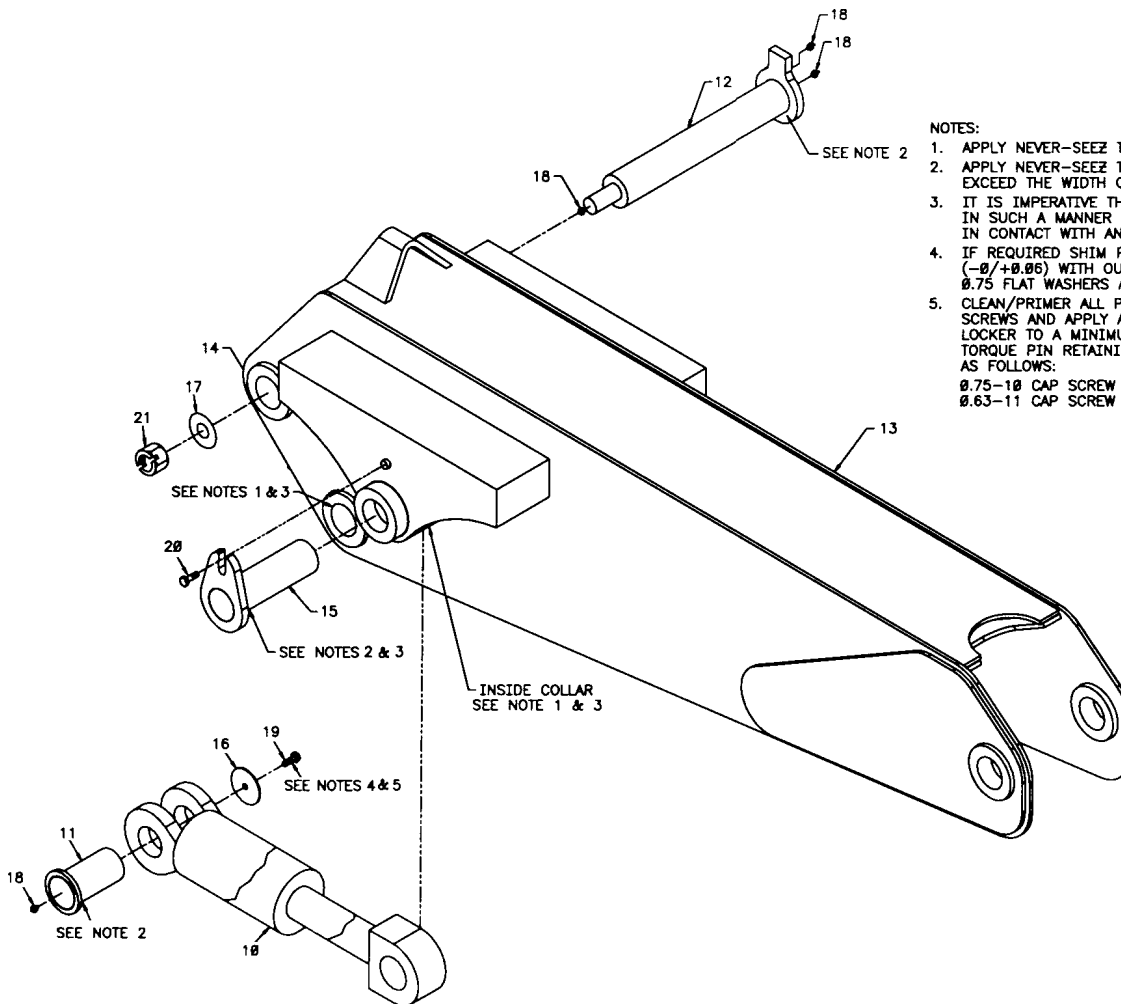


INNER BOOM ASM (41704201)

ITEM	PART NO.	DESCRIPTION	QTY
10.	3C357801	INNER CYLINDER	2
11.	52703923	PIN	2
12.	52703927	PIN	1
13.	52704197	INNER BOOM (INCL:14)	1
14.	60020191	BUSHING (PART OF 13)	3REF
15.	52711539	PIN	2
16.	60106681	PIN RETAINER PLATE	2
17.	60106682	PIN RETAINER PLATE	1
18.	72053508	ZERK 1/8NPT	4
19.	72060182	CAP SCR 3/4-10X1-1/4 HHGR5	2
20.	72060183	CAP SCR 3/4-10X1-1/2 HHGR5	2
21.	72062135	NUT 1 3/4-5 SLOTTED	1

NOTE

Anytime the pin retainer plate bolts have been removed, apply Loctite 262 to the threads before reassembly.

**NOTES:**

1. APPLY NEVER-SEEZ TO COLLAR ID.
2. APPLY NEVER-SEEZ TO PIN AT PIN CAP, NOT TO EXCEED THE WIDTH OF THE COLLAR.
3. IT IS IMPERATIVE THAT NEVER-SEEZ BE APPLIED IN SUCH A MANNER THAT IT DOES NOT COME IN CONTACT WITH ANY GAR-MAX BEARING.
4. IF REQUIRED SHIM PIN RETAINING PLATES FLUSH (-0/+0.06) WITH OUTSIDE OF COLLAR USING 0.75 FLAT WASHERS AS REQUIRED.
5. CLEAN/PRIMER ALL PIN RETAINING PLATE CAP SCREWS AND APPLY A SERVICEABLE THREAD LOCKER TO A MINIMUM OF THREE THREADS. TORQUE PIN RETAINING PLATE CAP SCREWS AS FOLLOWS:
 0.75-10 CAP SCREW (GR5 PLATED) - 200 FT-LBS.
 0.63-11 CAP SCREW (GR5 PLATED) - 115 FT-LBS.

INNER CYLINDER (3C357801)

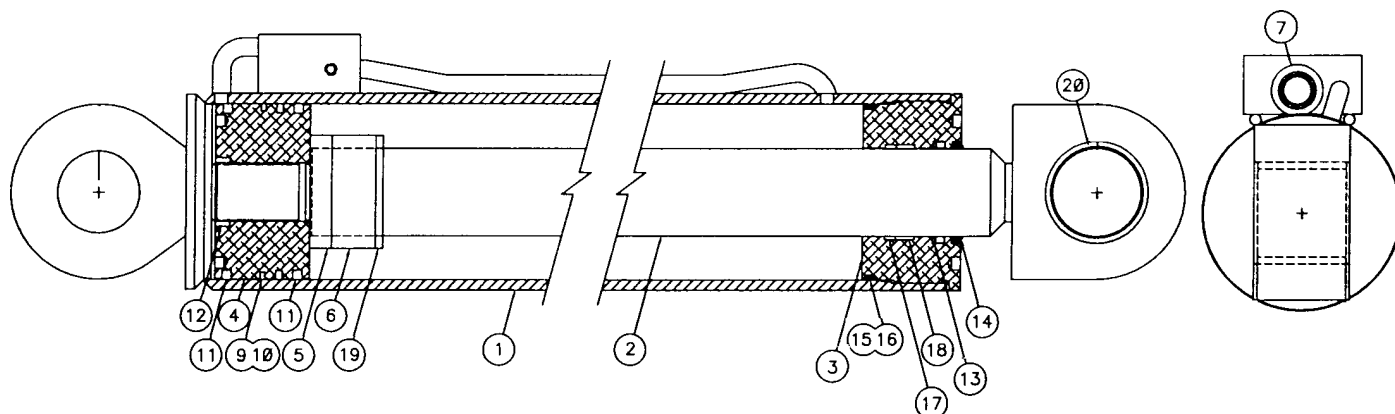
ITEM	PART NO.	DESCRIPTION	QTY
1.	4C357801	CASE	1
2.	4G357801	ROD (INCL: 20)	1
3.	6H060030	HEAD	1
4.	6I060200	PISTON	1
5.	6C075030	STOP TUBE	1
6.	6C150030	STOP TUBE	1
7.	73054242	C'BAL VALVE 25GPM	1
8.	9C242432	SEAL KIT (INCL:9-19)	1
9.	7T66P060	PISTON SEAL (PART OF 8)	1REF
10.	7Q072253	O-RING (PART OF 8)	1REF
11.	7T65I060	PISTON RING (PART OF 8)	2REF
12.	7T61N200	LOCK RING SEAL (PART OF 8)	1REF
13.	7R546030	ROD SEAL (PART OF 8)	1REF
14.	7R14P030	ROD WIPER (PART OF 8)	1REF
15.	7Q10P358	BACK-UP RING (PART OF 8)	1REF
16.	7Q072358	O-RING (PART OF 8)	1REF
17.	7T2N4032	WEAR RING (PART OF 8)	1REF
18.	7T2N8032	WEAR RING (PART OF 8)	1REF
19.	6A025030	WAFER LOCK (PART OF 8)	1REF
20.	70034441	BEARING(FROM 5-1-98)	1REF
		(PART 2)	1REF
	60020190	BUSHING (TO 5-1-98)	1REF

NOTE

IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY ,MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.



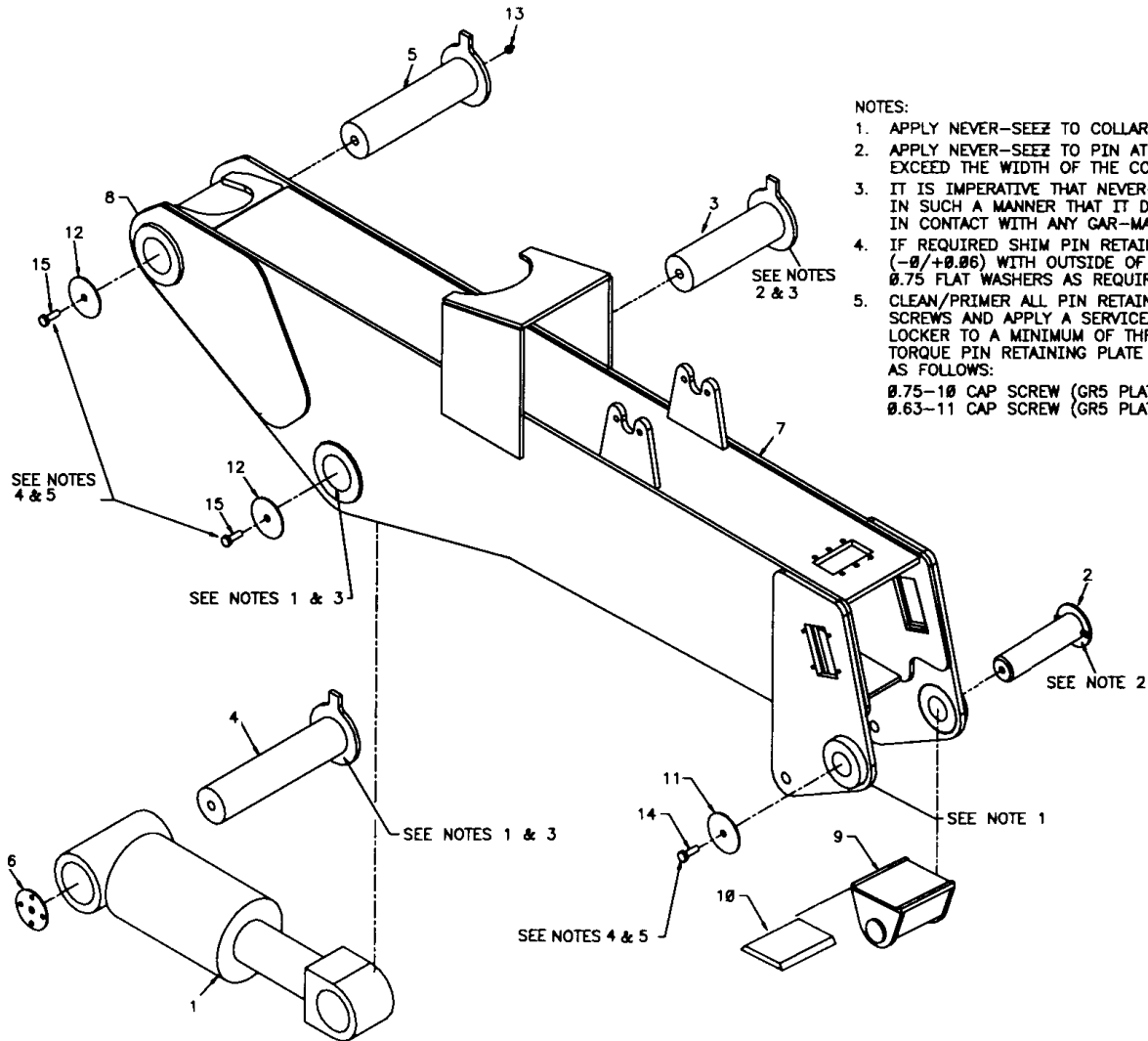
OUTER BOOM ASM (41704203)

ITEM	PART NO.	DESCRIPTION	QTY
1.	3C353821	OUTER CYLINDER	1
2.	52703752	PIN	1
3.	52714986	PIN	1
4.	52714987	PIN	1
5.	52703926	PIN	1
6.	52703944	PIN RETAINER	1
7.	52704199	OUTER BOOM (INCL:8)	1
8.	60020190	BUSHING (PART OF 7)	3REF
9.	52704525	TRUNNION	1
10.	60030079	WEAR PAD	1

11.	60106332	PIN RETAINER	1
12.	60106681	PIN RETAINER	2
13.	72053508	ZERK 1/8NPT	1
14.	72060147	CAP SCR 5/8-11X1 HHGR5	1
15.	72060181	CAP SCR 3/4-10X1 HHGR5	2

NOTE

Anytime the pin retainer plate bolts have been removed, apply Loctite 262 to the threads before re-assembly.

**NOTES:**

1. APPLY NEVER-SEEZ TO COLLAR ID.
2. APPLY NEVER-SEEZ TO PIN AT PIN CAP, NOT TO EXCEED THE WIDTH OF THE COLLAR.
3. IT IS IMPERATIVE THAT NEVER-SEEZ BE APPLIED IN SUCH A MANNER THAT IT DOES NOT COME IN CONTACT WITH ANY GAR-MAX BEARING.
4. IF REQUIRED SHIM PIN RETAINING PLATES FLUSH ($-\theta/+0.06$) WITH OUTSIDE OF COLLAR USING 0.75 FLAT WASHERS AS REQUIRED.
5. CLEAN/PRIMER ALL PIN RETAINING PLATE CAP SCREWS AND APPLY A SERVICEABLE THREAD LOCKER TO A MINIMUM OF THREE THREADS. TORQUE PIN RETAINING PLATE CAP SCREWS AS FOLLOWS:
 0.75-10 CAP SCREW (GR5 PLATED) - 200 FT-LBS.
 0.63-11 CAP SCREW (GR5 PLATED) - 115 FT-LBS.

OUTER CYLINDER (3C353821)

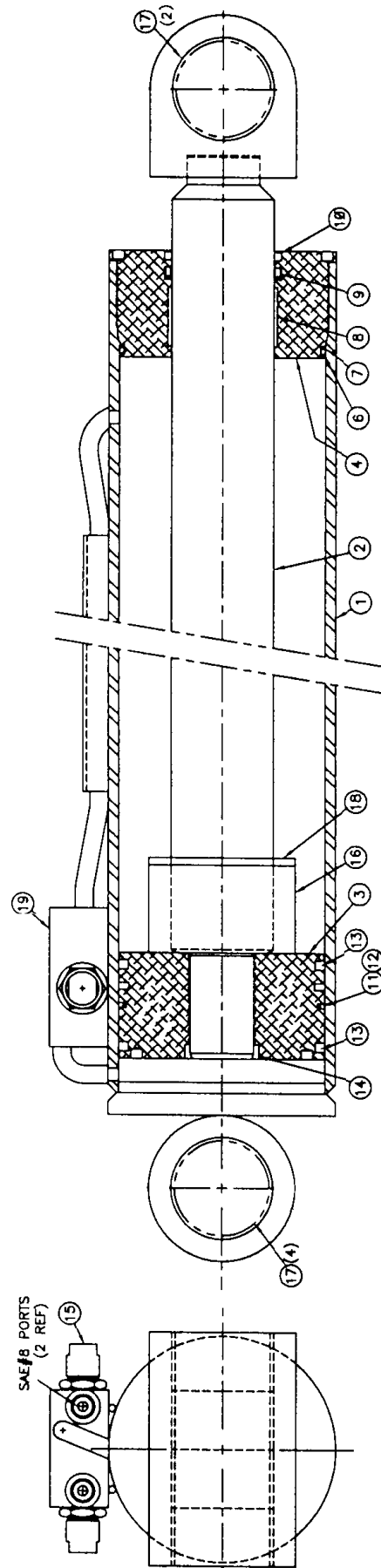
ITEM	PART NO.	DESCRIPTION	QTY
1.	4C353820	CASE (INCL:17(2),19)	1
2.	4G353820	ROD (INCL:17)	1
3.	6I070218	PISTON	1
4.	6HX70035	HEAD	1
5.	9C282835	SEAL KIT (INCL:6-14,18)	1
6.	7Q072363	O-RING (PART OF 5)	1REF
7.	7Q10P363	BACK-UP RING (PART OF 5)	1REF
8.	7T2N2X37	WEAR RING (PART OF 5)	1REF
9.	7R546035	ROD SEAL (PART OF 5)	1REF
10.	7R14P035	ROD WIPER (PART OF 5)	1REF
11.	7Q072259	O-RING (PART OF 5)	1REF
12.	7T66P070	PISTON SEAL (PART OF 5)	1REF
13.	7T65I070	PISTON RING (PART OF 5)	2REF
14.	7T61N218	LOCK RING SEAL (PART OF 5)	1REF
15.	73054242	VALVE	2
16.	6C300035	STOP TUBE	1
17.	70034285	BEARING (FROM 5-1-98)	6REF
18.	6A025035	WAFER LOCK (PART OF 5)	1REF
19.	7PNPXT02	PLUG 1/8NPT (PART OF 1)	2REF
	60020191	BUSHING (TO 5-1-98)	3REF

NOTE

IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.



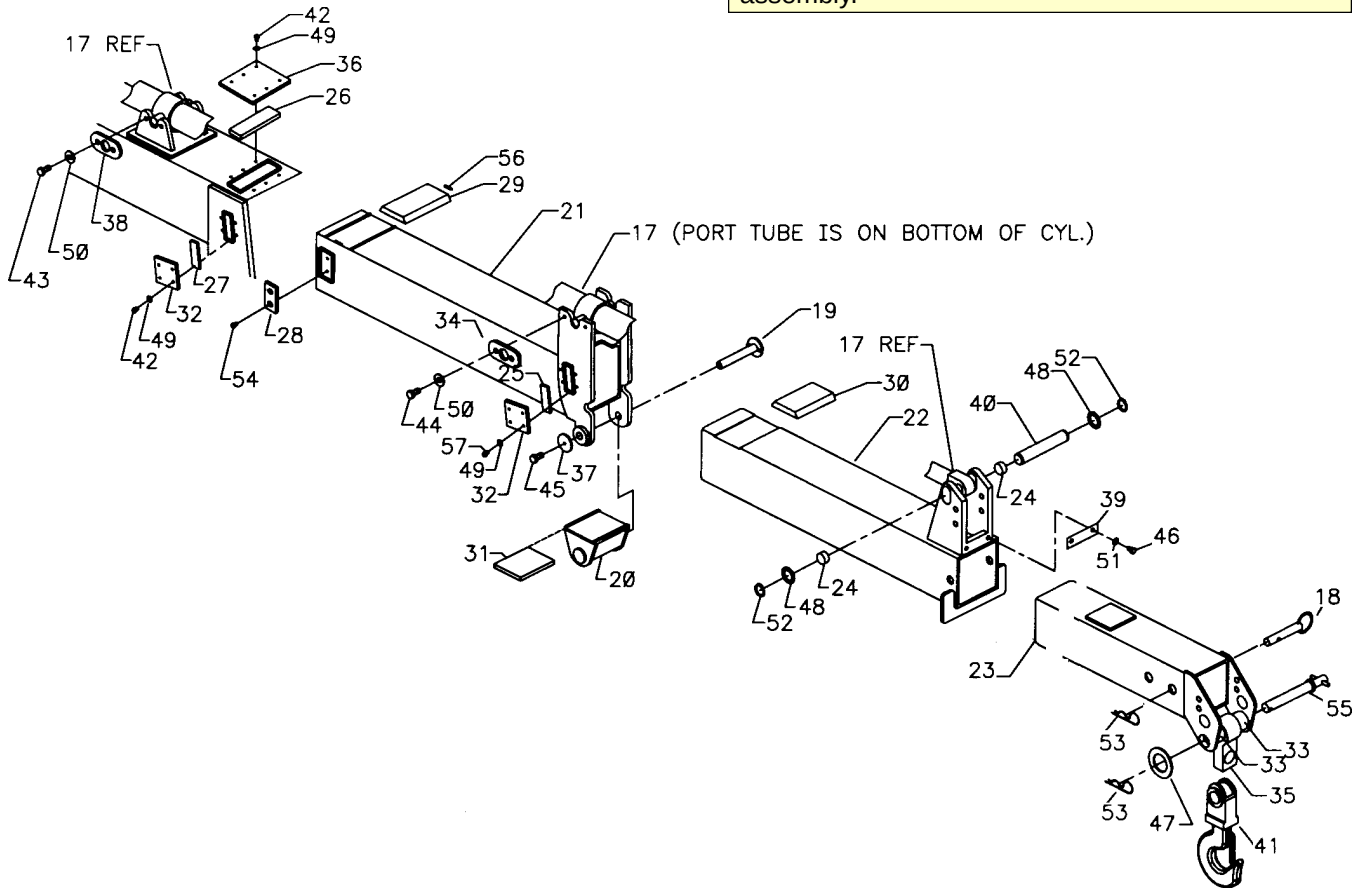
EXTENSION BOOM ASM-2H1M (41704227)

ITEM	PART NO.	DESCRIPTION	QTY
17.	3K130850	EXTENSION CYLINDER	1
18.	52702082	PIN	1
19.	52703295	PIN	1
20.	52704524	TRUNNION	1
21.	52704527	1ST STG EXT BOOM	1
22.	52704528	2ND STG EXT BOOM	1
23.	52704529	3RD STG EXT BOOM	1
24.	60020198	ROLLER	2
25.	60030036	WEAR PAD	2
26.	60030006	WEAR PAD	1
27.	60030032	WEAR PAD	2
28.	60030075	WEAR PAD	2
29.	60030076	WEAR PAD	1
30.	60030077	WEAR PAD	1
31.	60030078	WEAR PAD	1
32.	60102654	RETAINER	4
33.	60103972	SLEEVE	2
34.	60104029	RETAINER	2
35.	52709464	LINK	1
36.	60105925	RETAINER	1
37.	60106332	PIN RETAINER	1

38.	60107152	LOCK PLATE	2
39.	60107498	STOP BLOCK	1
40.	60107815	PIN	1
41.	70073647	HOOK 9-TON	1
42.	72060046	CAP SCR 3/8-16X1 HH GR5	14
43.	72060092	CAP SCR 1/2-13X1-1/4 HH GR5	4
44.	72060093	CAP SCR 1/2-13X1-1/2 HH GR5	4
45.	72060147	CAP SCR 5/8-11X1 HH GR5	1
46.	72060184	CAP SCR 3/4-10X1-3/4 HH GR5	2
47.	60110572	SPACER	1
48.	72063010	WASHER 1" WRT	2
49.	72063051	WASHER 3/8 LOCK	22
50.	72063053	WASHER 1/2 LOCK	8
51.	72063056	WASHER 3/4 LOCK	2
52.	72066125	RETAINING RING 1"	2
53.	72066145	HAIR PIN .19	2
54.	72601043	CAP SCR 3/8-16X3/4 FLTHDSOC	4
55.	52705307	PIN	1
56.	60107390	BAR	2
57.	72060044	CAP SCR 3/8-16X3/4 HHGR5	8

NOTE

Anytime the pin retainer plate bolts have been removed, apply Loctite 262 to the threads before re-assembly.



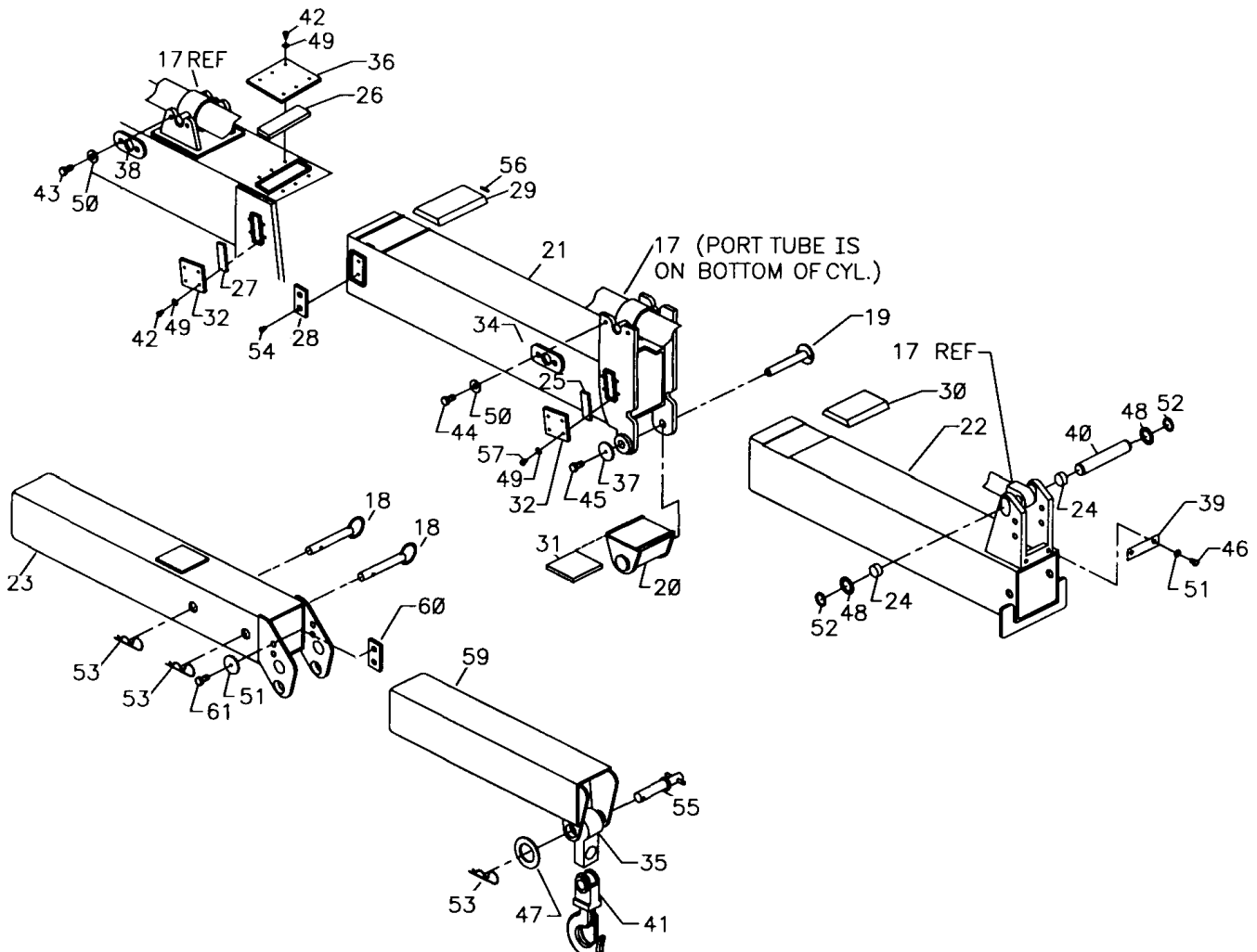
EXTENSION BOOM ASM-2H2M (41704536)

ITEM	PART NO.	DESCRIPTION	QTY
17.	3K130850	EXTENSION CYLINDER	1
18.	52702082	PIN	2
19.	52703295	PIN	1
20.	52704524	TRUNNION	1
21.	52704527	1ST STG EXT BOOM	1
22.	52704528	2ND STG EXT BOOM	1
23.	52704529	3RD STG EXT BOOM	1
24.	60020198	ROLLER	2
25.	60030036	WEAR PAD	2
26.	60030006	WEAR PAD	1
27.	60030032	WEAR PAD	2
28.	60030075	WEAR PAD	2
29.	60030076	WEAR PAD	1
30.	60030077	WEAR PAD	1
31.	60030078	WEAR PAD	1
32.	60102654	RETAINER	4
34.	60104029	RETAINER	2
35.	52709464	LINK	1
36.	60105925	RETAINER	1
37.	60106332	PIN RETAINER	1
38.	60107152	LOCK PLATE	2
39.	60107498	STOP BLOCK	1
40.	60107815	PIN	1

41.	70073647	HOOK 9-TON	1
42.	72060046	CAP SCR 3/8-16X1 HH GR5	14
43.	72060092	CAP SCR 1/2-13X1-1/4 HH GR5	4
44.	72060093	CAP SCR 1/2-13X1-1/2 HH GR5	4
45.	72060147	CAP SCR 5/8-11X1 HH GR5	1
46.	72060184	CAP SCR 3/4-10X1-3/4 HH GR5	2
47.	60110572	SPACER	1
48.	72063010	WASHER 1" WRT	2
49.	72063051	WASHER 3/8 LOCK	22
50.	72063053	WASHER 1/2 LOCK	8
51.	72063056	WASHER 3/4 LOCK	4
52.	72066125	RETAINING RING 1"	2
53.	72066145	HAIR PIN .19	3
54.	72601043	CAP SCR 3/8-16X3/4 FLTHDSOC	4
55.	52705307	PIN	1
56.	60107390	BAR	2
57.	72060044	CAP SCR 3/8-16X3/4 HHGR5Z	8
59.	52704530	4TH STG EXT BOOM	1
60.	60107496	STOP BLOCK	1
61.	72060183	CAP SCR 3/4-10X1-1/2 HH GR5	2

NOTE

Anytime the pin retainer plate bolts have been removed, apply Loctite 262 to the threads before re-assembly.



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3-17

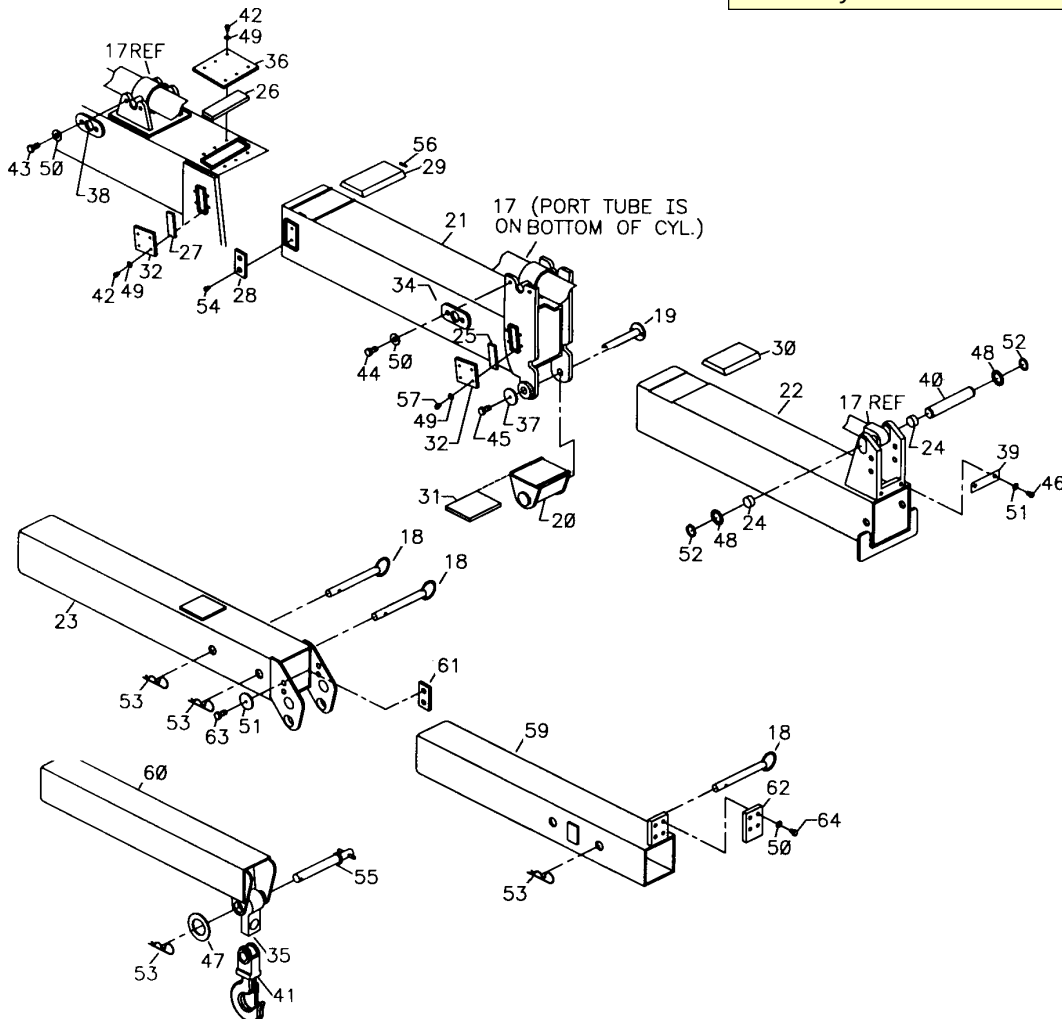
EXTENSION BOOM ASM-2H3M (41704537)

ITEM	PART NO.	DESCRIPTION	QTY
17.	3K130850	EXTENSION CYLINDER	1
18.	52702082	PIN	3
19.	52703295	PIN	1
20.	52704524	TRUNNION	1
21.	52704527	1ST STG EXT BOOM	1
22.	52704528	2ND STG EXT BOOM	1
23.	52704529	3RD STG EXT BOOM	1
24.	60020198	ROLLER	2
25.	60030036	WEAR PAD	2
26.	60030006	WEAR PAD	1
27.	60030032	WEAR PAD	2
28.	60030075	WEAR PAD	2
29.	60030076	WEAR PAD	1
30.	60030077	WEAR PAD	1
31.	60030078	WEAR PAD	1
32.	60102654	RETAINER	4
34.	60104029	RETAINER	2
35.	52709464	LINK	1
36.	60105925	RETAINER	1
37.	60106332	PIN RETAINER	1
38.	60107152	LOCK PLATE	2
39.	60107498	STOP BLOCK	1
40.	60107815	PIN	1
41.	70073647	HOOK 9-TON	1

42.	72060046	CAP SCR 3/8-16X1 HH GR5	14
43.	72060092	CAP SCR 1/2-13X1-1/4 HH GR5	4
44.	72060093	CAP SCR 1/2-13X1-1/2 HH GR5	4
45.	72060147	CAP SCR 5/8-11X1 HH GR5	1
46.	72060184	CAP SCR 3/4-10X1-3/4 HH GR5	2
47.	60110572	SPACER	1
48.	72063010	WASHER 1" WRT	2
49.	72063051	WASHER 3/8 LOCK	22
50.	72063053	WASHER 1/2 LOCK	8
51.	72063056	WASHER 3/4 LOCK	4
52.	72066125	RETAINING RING 1"	2
53.	72066145	HAIR PIN .19	4
54.	72601043	CAP SCR 3/8-16X3/4 FLTHDSOC	4
55.	52705307	PIN	1
56.	60107390	BAR	2
57.	72060044	CAP SCR 3/8-16X3/4 HHGR5Z	8
59.	52704526	4TH STG EXT BOOM	1
60.	52704531	5TH STG EXT BOOM	1
61.	60107496	STOP BLOCK	1
62.	60107497	STOP BLOCK	1
63.	72060183	CAP SCR 3/4-10X1-1/2 HH GR5	2
64.	72060094	CAP SCR 1/2-13X1-3/4 HH GR5	4

NOTE

Anytime the pin retainer plate bolts have been removed, apply Loctite 262 to the threads before re-assembly.



EXTENSION CYLINDER (3K130850)

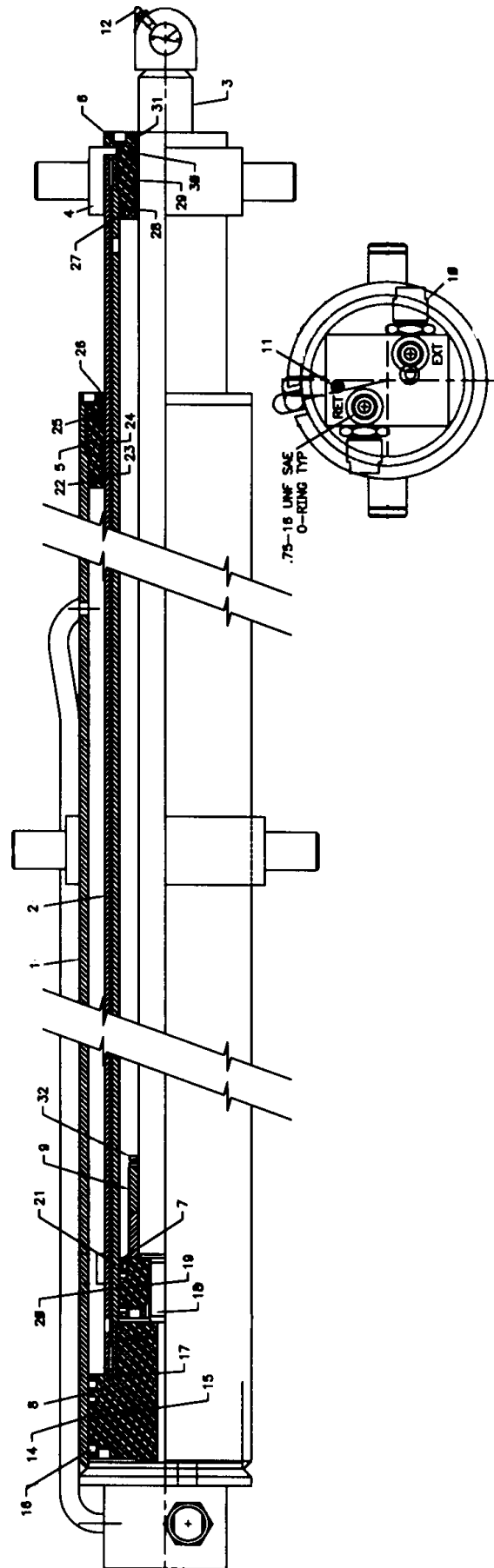
ITEM	PART NO.	DESCRIPTION	QTY
1.	4K130850	CASE (INCL: 11)	1
2.	4H130850	INNER CASE	1
3.	4G130850	ROD (INCL: 12)	1
4.	4FG03282	MOUNTING RING	1
5.	6H032810	HEAD	1
6.	6H032820	HEAD	1
7.	6I030106	PISTON	1
8.	6I130850	PISTON	1
9.	6C150017	STOP TUBE	2
10.	73054242	VALVE 25GPM	2
11.	7PNPXT02	PLUG 1/8NPT (PART OF 1)	4REF
12.	72053507	ZERK 1/4-28 (PART OF 3)	1REF
13.	9X130850	SEAL KIT (INCL:14-32)	1
14.	7T66P050	PISTON SEAL (PART OF 13)	1REF
15.	7Q072157	O-RING (PART OF 13)	1REF
16.	7T65I050	PISTON RING (PART OF 13)	2REF
17.	7Q072236	O-RING (PART OF 13)	1REF
18.	7T61N106	NYLON LOCK (PART OF 13)	1REF
19.	7Q072145	O-RING (PART OF 13)	1REF
20.	7T66P030	PISTON SEAL (PART OF 13)	1REF
21.	7T65I030	PISTON RING (PART OF 13)	2REF
22.	7Q072350	O-RING (PART OF 13)	1REF
23.	7Q10P350	BACK-UP RING (PART OF 13)	1REF
24.	7T2N8042	WEAR RING (PART OF 13)	1REF
25.	7R546040	ROD SEAL (PART OF 13)	1REF
26.	7R14P040	ROD WIPER (PART OF 13)	1REF
27.	7Q072334	O-RING (PART OF 13)	1REF
28.	7Q10P334	BACK-UP RING (PART OF 13)	1REF
29.	7T2N8020	WEAR RING (PART OF 13)	1REF
30.	7R546017	ROD SEAL (PART OF 13)	1REF
31.	7R14P017	ROD WIPER (PART OF 13)	1REF
32.	6A025017	WAFER LOCK (PART OF 13)	1REF

NOTE

IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

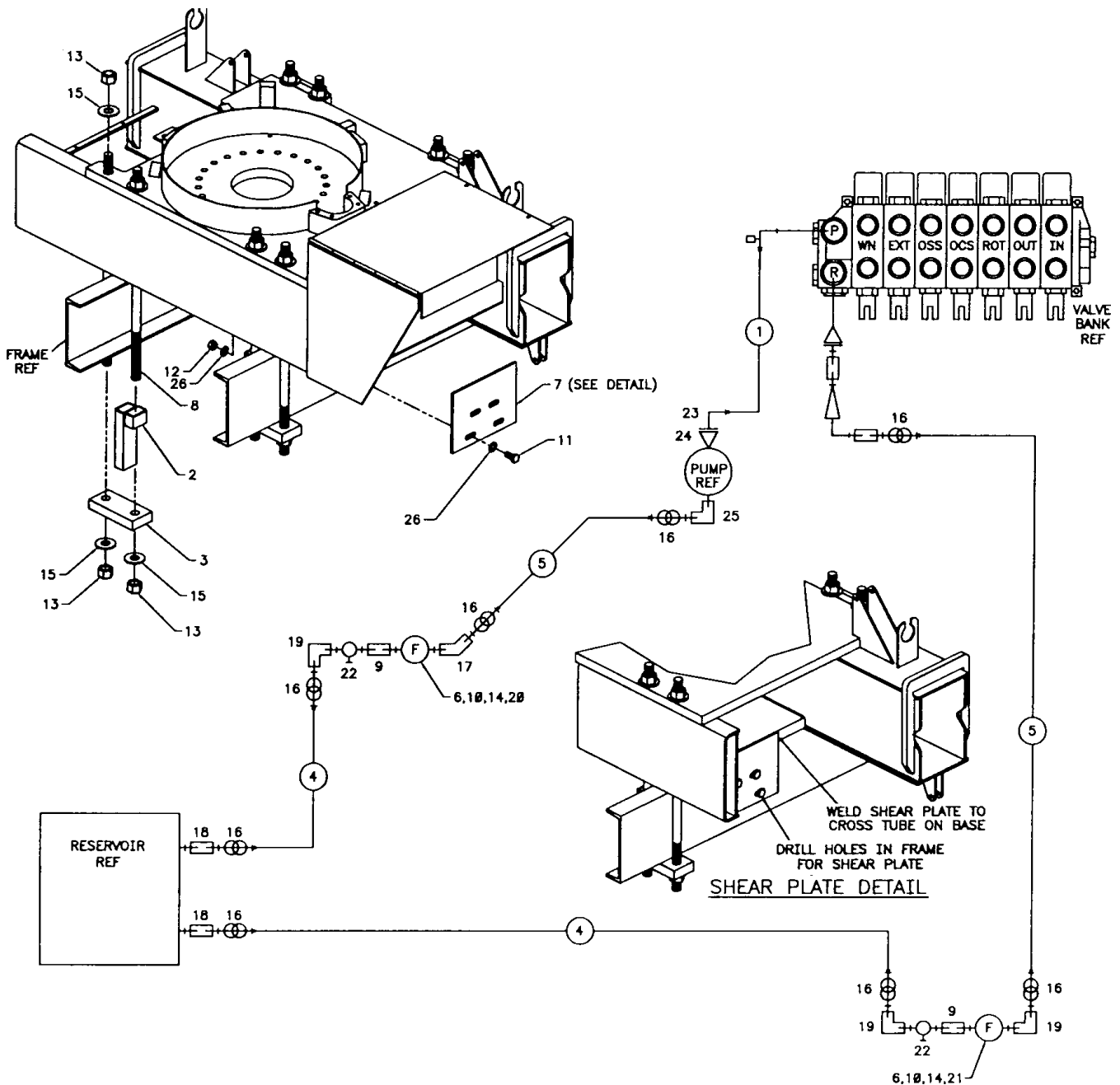
USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.



INSTALLATION KIT (93712941)

ITEM	PART NO.	DESCRIPTION	QTY
1.	51704808	HOSE ASM 3/4X72 #12F#12F	1
2.	52706660	SUPPORT	4
3.	60010665	CLAMP PLATE	4
4.	60035829	HOSE 1-1/4 100R4X48	2
5.	60035832	HOSE 1-1/4 100R4X38	2
6.	60103870	OIL FILTER BRACKET	2
7.	60105107	SHEAR PLATE	2
8.	60105325	TIE DOWN STUD 1-1/4X35	8
9.	72053211	PIPE NIPPLE 1-1/4NPT X CLOSE	2
10.	72060025	CAP SCR 5/16-18X1 HHGR5	6
11.	72060931	CAP SCR 5/8-11X2-3/4 HHGR8	8
12.	72062091	NUT 5/8-11 LOCK	8

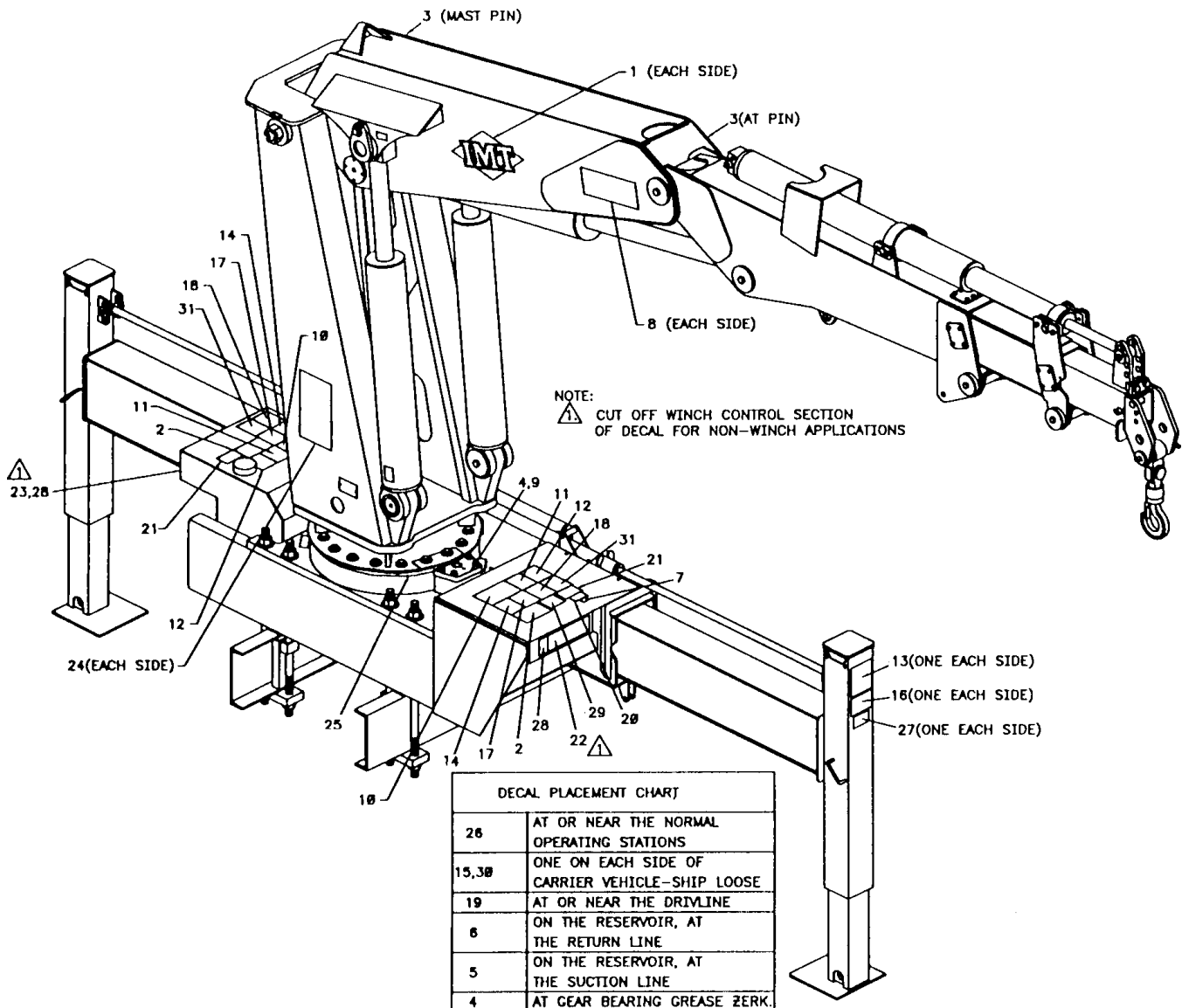
13.	72062142	NUT 1 1/4-7 LOCK STL INSERT	16
14.	72063050	WASHER 5/16 LOCK	6
15.	72063067	WASHER 1-1/4 HI-STRENGTH	16
16.	72066516	HOSE CLAMP 1-1/4 2-BOLT	8
17.	72531196	BARB NIPPLE 1-1/4MPT 1-1/4 45°	1
18.	72531550	BARB NIPPLE 1-1/4MPT 1-1/4	2
19.	72532346	BARB NIPPLE 1-1/4MPT 1-1/4 90°	3
20.	73052012	SUCTION FILTER 100MESH	1
21.	73052091	RETURN FILTER 10MIC 1-1/4FPT	1
22.	73054130	GATE VALVE 1-1/4NPT BRASS	2
23.	72053767	ELBOW #12MSTR #12MJIC 90°	1
24.	72532949	ADAPTER #20MSTR #12FSTR	1
25.	72532710	BEAD NIPPLE #20STR 1-1/4 90°	1
26.	72063119	WASHER 5/8	16



DECAL KIT-18000 SERIES CRANE (95712990)

ITEM	PART NO.	DESCRIPTION	QTY
1.	70029252	IMT DIAMOND	2
2.	70391583	DECAL-SETUP/STOW	2
3.	70391612	DECAL-GREASE WKLY LH	2
4.	70391613	DECAL-GREASE WKLY RH	2
5.	70392108	DECAL-SUCTION LINE	1
6.	70392109	DECAL-RETURN LINE	1
7.	70392213	DECAL-CAUTION WASH/WAX	1
8.	70392210	DECAL-18000 SERIES IDENT	2
9.	70392524	DECAL-ROTATE/GREASE	1
10.	70392813	DECAL-DANGER ELECTRO	2
11.	70392814	DECAL-DANGER OPERATOR	2
12.	70392815	DECAL-DANGER OPERATION	2
13.	70392864	DECAL-DANGER STAND CLEAR	2
14.	70392866	DECAL-DANGER OPER COND	2

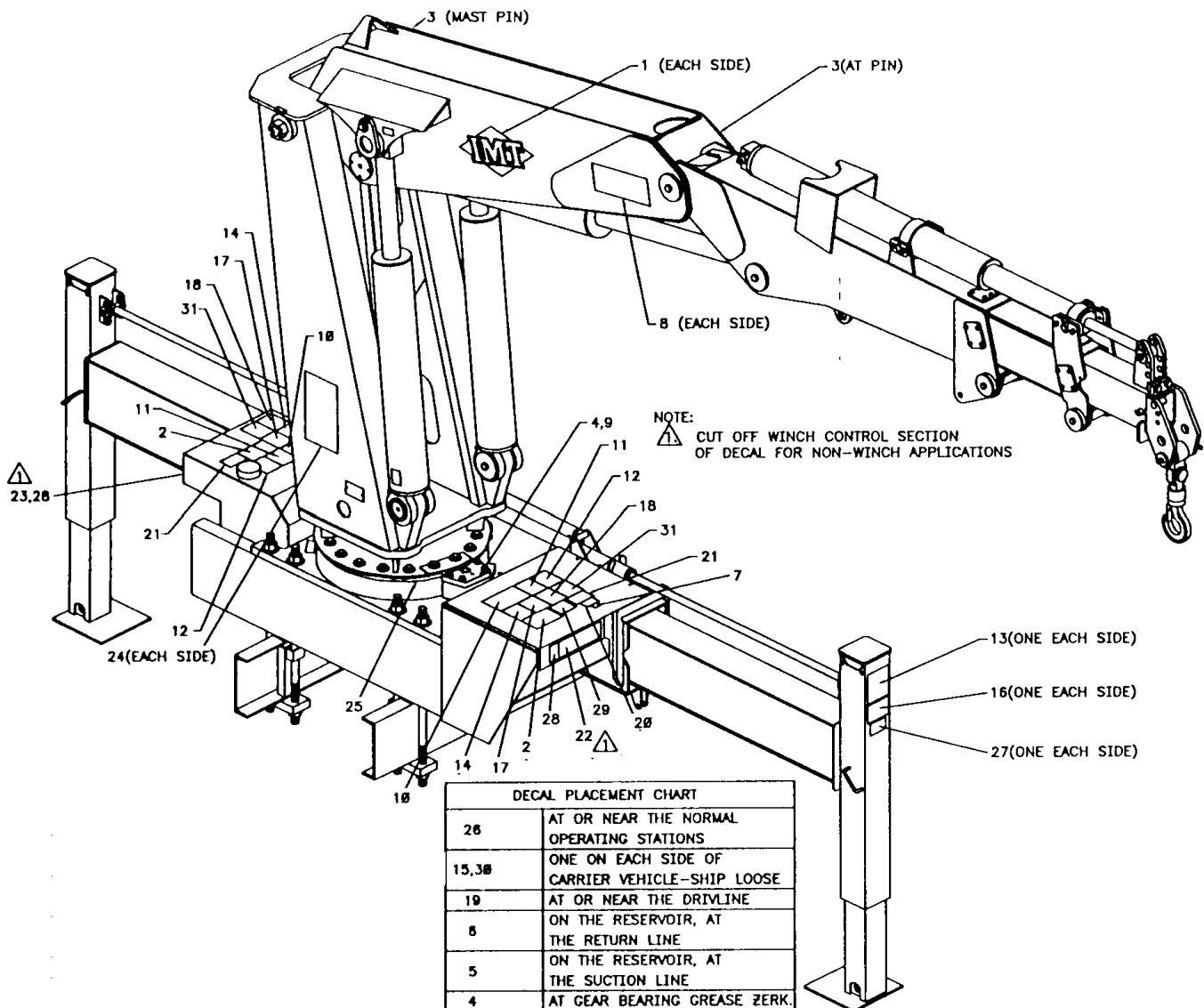
15.	70392865	DECAL-DANGER ELECTRO	4
16.	70392867	DECAL-DANGER OR. MOVING	2
17.	70392888	DANGER OPER RESTRICT	2
18.	70392890	DECAL-DGR STOW/UNFOLD	2
19.	70392891	DECAL-DANGER DRIVELINE	2
20.	70392982	DECAL-CONTACT IMT	1
21.	71039134	DECAL-CAUTION OIL LEVEL	2
22.	71039168	DECAL-CTRL W/WINCH CS	1
23.	71039169	DECAL-CTRL W/WINCH SS	1
24.	71392223	CAPACITY CHART	2
25.	71392365	DECAL-ALIGN CRANE	1
26.	70392889	DECAL-DANGER RC ELECTRO	2
27.	70394309	DECAL-CAUT STOW RIGHT OR.	2
28.	71394448	DECAL-CTRL PWR OUT	2
29.	70394189	DECAL-RECOMMEND HYD OIL	1
30.	71392868	DECAL-DANGER CR LOADLINE	4
31.	70392863	DECAL-DANGER HOIST PERS	2



DECAL KIT-MODEL 2595 CRANE **(95712992)**

ITEM	PART NO.	DESCRIPTION	QTY
1.	70029252	IMT DIAMOND	2
2.	70391583	DECAL-SETUP/STOW	2
3.	70391612	DECAL-GREASE WKLY LH	2
4.	70391613	DECAL-GREASE WKLY RH	2
5.	70392108	DECAL-SUCTION LINE	1
6.	70392109	DECAL-RETURN LINE	1
7.	70392213	DECAL-CAUTION WASH/WAX	1
8.	71393797	DECAL-2595 IDENT	2
9.	70392524	DECAL-ROTATE/GREASE	1
10.	70392813	DECAL-DANGER ELECTRO	2
11.	70392814	DECAL-DANGER OPERATOR	2
12.	70392815	DECAL-DANGER OPERATION	2
13.	70392864	DECAL-DANGER STAND CLEAR	2
14.	70392866	DECAL-DANGER OPER COND	2

15.	70392865	DECAL-DANGER ELECTRO	4
16.	70392867	DECAL-DANGER OR. MOVING	2
17.	70392888	DANGER OPER RESTRICT	2
18.	70392890	DECAL-DGR STOW/UNFOLD	2
19.	70392891	DECAL-DANGER DRIVELINE	2
20.	70392982	DECAL-CONTACT IMT	1
21.	71039134	DECAL-CAUTION OIL LEVEL	2
22.	71039168	DECAL-CTRL W/WINCH CS	1
23.	71039169	DECAL-CTRL W/WINCH SS	1
24.	71393776	CAPACITY CHART	2
25.	71392365	DECAL-ALIGN CRANE	1
26.	70392889	DECAL-DANGER RC ELECTRO	2
27.	70394309	DECAL-CAUT STOW RIGHT OR.	2
28.	71394448	DECAL-CTRL PWR OUT	2
29.	70394189	DECAL-RECOMMEND HYD OIL	1
30.	71392868	DECAL-DANGER CR LOADLINE	4
31.	70392863	DECAL-DANGER HOIST PERS	2



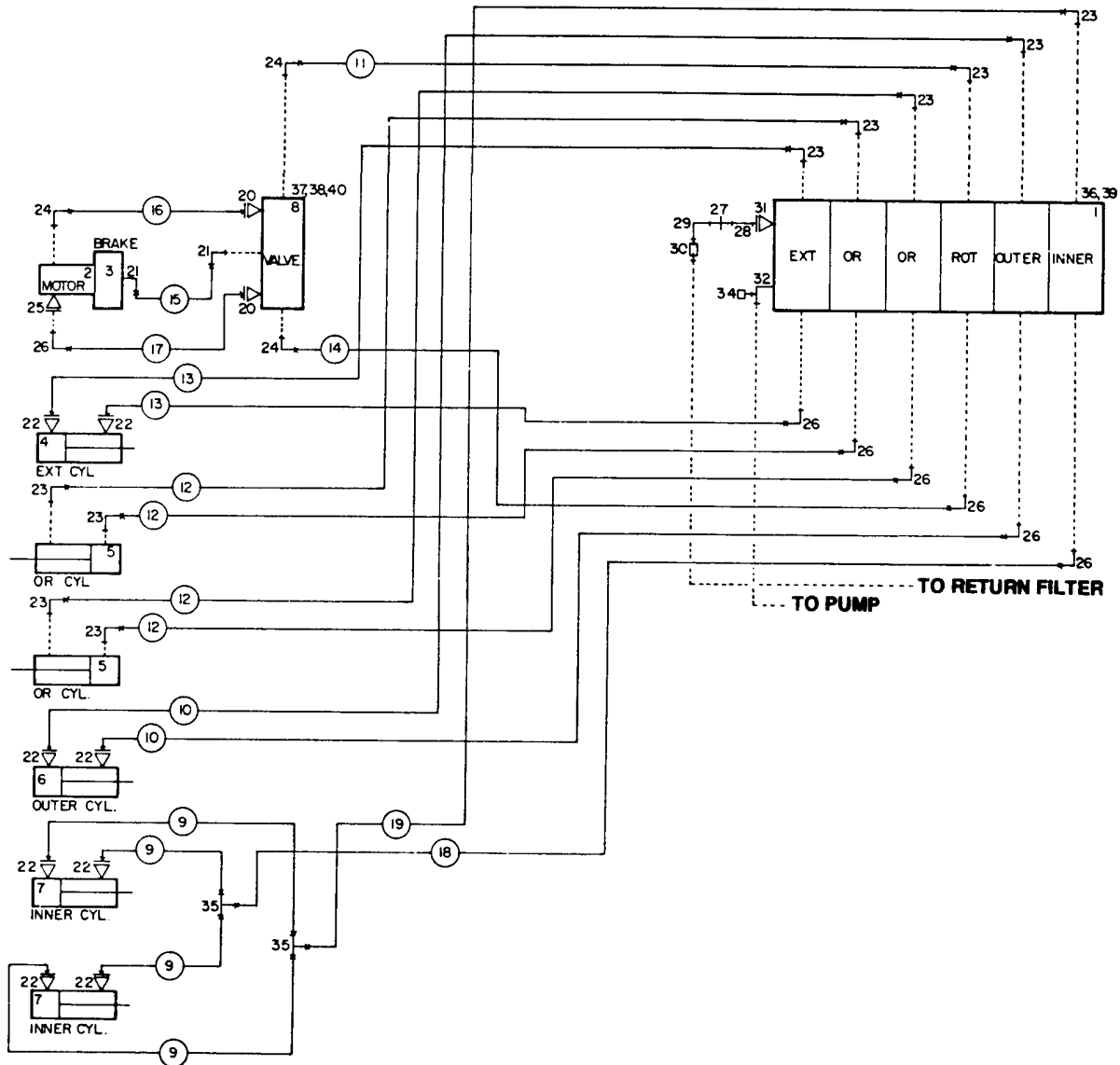
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3-22

HYDRAULIC KIT-6F (91704450)

ITEM	PART NO.	DESCRIPTION	QTY
1.		VALVEBANK	REF
2.		MOTOR	REF
3.		BRAKE	REF
4.		EXTENSION CYLINDER	REF
5.		OUTRIGGER CYLINDER	REF
6.		OUTER CYLINDER	REF
7.		INNER CYLINDER	REF
8.	73054370	VALVE	1
9.	51706029	HOSE ASM 1/2X38	4
10.	51703156	HOSE ASM 1/2X180	2
11.	51703704	HOSE ASM 3/8X12	1
12.	51703692	HOSE ASM 3/8X82	4
13.	51703615	HOSE ASM 1/2X264	2
14.	51703283	HOSE ASM 3/8X9	1
15.	51705884	HOSE ASM 1/4X9	1
16.	51704448	HOSE ASM 3/8X19	1
17.	51704447	HOSE ASM 3/8X21	1
18.	51705062	HOSE ASM 1/2X48	1
19.	51705063	HOSE ASM 1/2X50	1
20.	72532359	ADAPTER 7/8MSTR 3/4MJIC	2

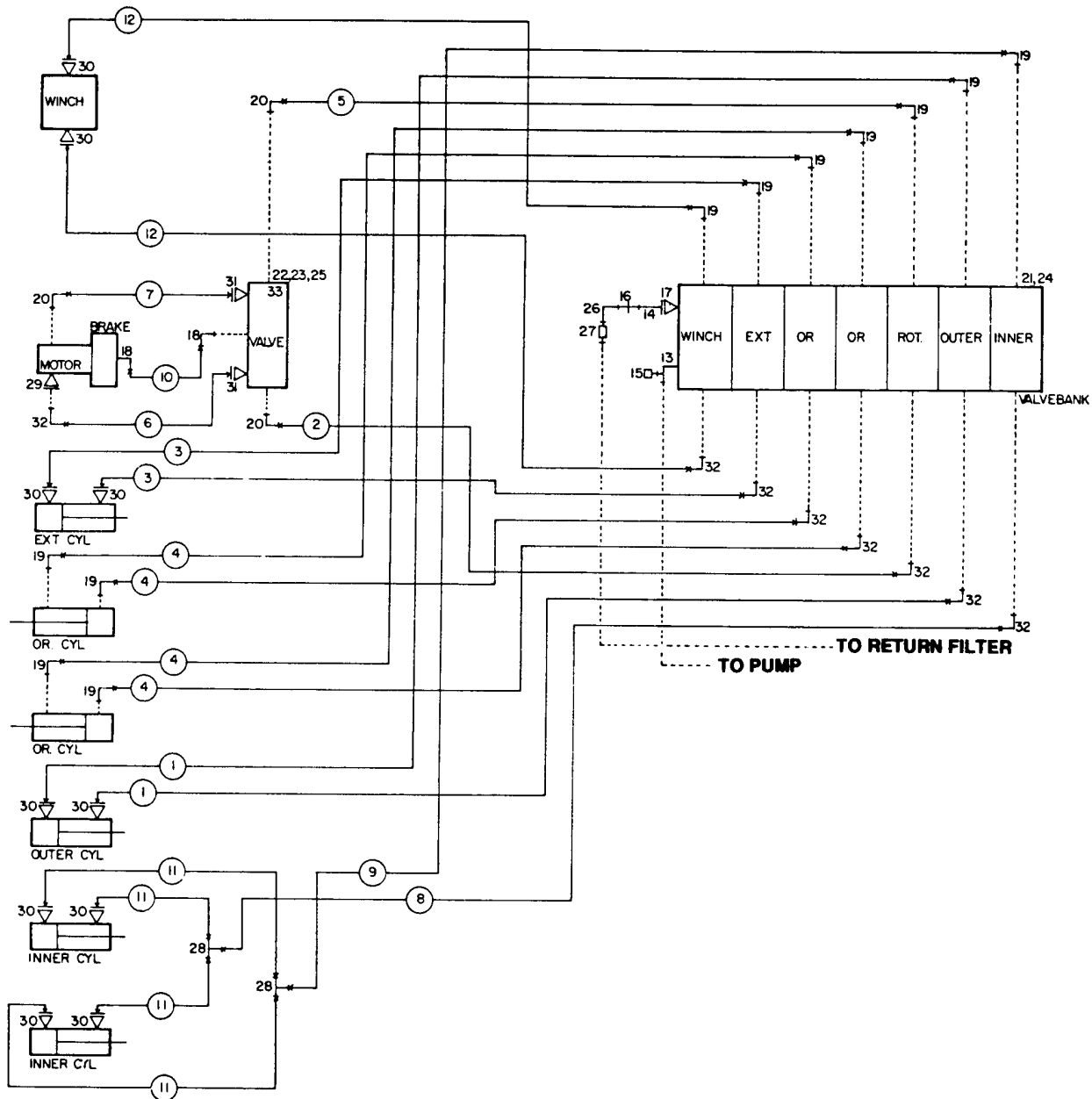
21.	72053758	ELBOW 7/16MSTR 7/16MJIC 90°	2
22.	72532358	ADAPTER 3/4MSTR 3/4MJIC	8
23.	72053763	ELBOW 3/4MSTR 3/4MJIC 90°	4
24.	72053764	ELBOW 7/8MSTR 3/4MJIC 90°	3
25.	72531206	ADAPTER 7/8MSTR 3/4FSTR	1
26.	72532666	ELBOW 3/4MSTR 3/4MJIC XLG	1
27.	72053489	REDUCER COUPLING 1-1/4 3/4NPT	1
28.	72053141	PIPE NIPPLE 3/4NPT X CLOSE	1
29.	72531135	STREET ELBOW 1-1/4NPT 90°	1
30.	72531196	BARB NIPPLE 1-1/4NPT 1-1/4HOSE 45°	1
31.	72053747	ADAPTER 1-1/16MSTR 3/4FPT	1
32.	60107995	ELBOW-MODIFIED	1
34.	72053245	PIPE PLUG 1/4NPT	1
35.	72531205	TEE 3/4JIC 1/2TUBE	2
36.	72060033	CAP SCR 5/16-18X3 HH GR5	3
37.	72060051	CAP SCR 3/8-16X2-1/4 HH GR5	2
38.	72062103	NUT 3/8-16 LOCK	2
39.	72062109	NUT 5/16-18 LOCK	3
40.	72063003	WASHER 3/8 WRT	2



HYDRAULIC KIT-7F (91704451)

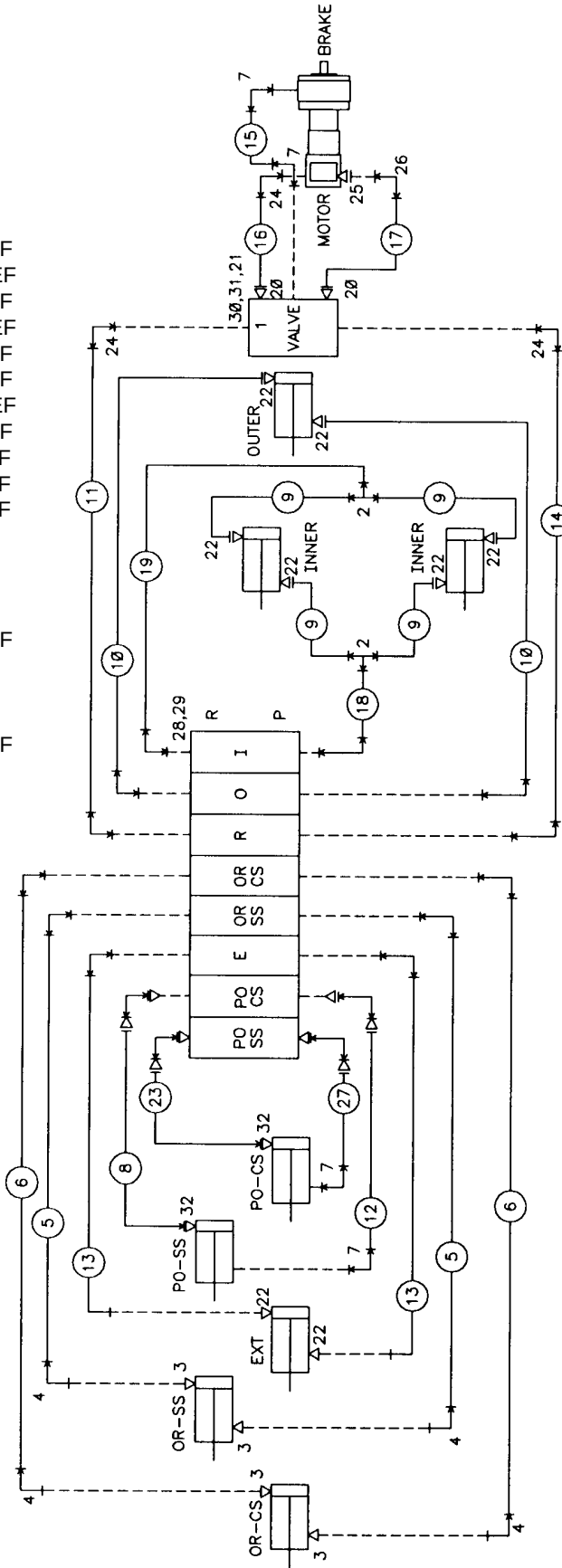
ITEM	PART NO.	DESCRIPTION	QTY
1.	51703156	HOSE ASM 1/2X180	2
2.	51703283	HOSE ASM 3/8X9	1
3.	51703615	HOSE ASM 1/2X264	2
4.	51703692	HOSE ASM 3/8X82	4
5.	51703704	HOSE ASM 3/8X12	1
6.	51704447	HOSE ASM 3/8X21	1
7.	51704448	HOSE ASM 3/8X19	1
8.	51705062	HOSE ASM 1/2X48	1
9.	51705063	HOSE ASM 1/2X50	1
10.	51705884	HOSE ASM 1/4X9	1
11.	51706029	HOSE ASM 1/2X38	4
12.	51706030	HOSE ASM 1/2X300	2
13.	60107995	ELBOW-MODIFIED	1
14.	72053141	NIPPLE 3/4NPT X CLOSE	1
15.	72053245	PIPE PLUG 1/4NPT	1
16.	72053489	REDUCER COUPLING 1-1/4	

17.	72053747	3/4NPT ADAPTER 1-1/16MSTR 3/4FPT	1
18.	72053758	ELBOW 7/16MSTR 7/16MJIC 90°	2
19.	72053763	ELBOW 3/4MSTR 3/4MJIC 90°	4
20.	72053764	ELBOW 7/8MSTR 3/4MJIC 90°	3
21.	72060033	CAP SCR 5/16-18X3 HH GR5	3
22.	72060051	CAP SCR 3/8-16X2-1/4 HH GR5	2
23.	72062103	NUT 3/8-16 LOCK	2
24.	72062109	NUT 5/16-18 LOCK	3
25.	72063003	WASHER 3/8 WRT	2
26.	72531135	STREET ELBOW 1-1/4NPT 90°	1
27.	72531196	BARB NIPPLE 1-1/4NPT 1-1/4HOSE 45°	1
28.	72531205	TEE 3/4JIC 1/2TUBE	2
29.	72531206	ADAPTER 7/8MSTR 3/4FSTR	1
30.	72532358	ADAPTER 3/4MSTR 3/4MJIC	10
31.	72532359	ADAPTER 7/8MSTR 3/4MJIC	2
32.	72532666	ELBOW 3/4MSTR 3/4MJIC XLG	1
33.	73054370	VALVE	1



HYDRAULIC KIT-8F (91711257)

ITEM	PART NO.	DESCRIPTION	QTY
1.	73054370	COUNTERBALANCE VALVE	1
2.	72531205	TEE 3/4MJIC 1/2TUBE	2
3.	72532355	ADAPTER #6MSTR #6MJIC	4
4.	72532772	ELBOW #6MJIC #6FJIC SWVL	4
5.		SEE HOSE CHART	
6.		SEE HOSE CHART	
7.	72053758	ELBOW #6MSTR #6MJIC 90°	4
8.	51394573	HOSE ASM 1/4X97.5 FF #4#4	*1REF
9.	51394578	HOSE ASM 1/2X43 FF #8#8	*4REF
10.	51394574	HOSE ASM 1/2X183 FF #8#8	*2REF
11.	51394575	HOSE ASM 3/8X15 FF #4#4	*1REF
12.	51394334	HOSE ASM 1/4X53.5 FF #4#4	*1REF
13.	51394118	HOSE ASM 1/2X267 FF #8#8	*2REF
14.	51394424	HOSE ASM 3/8X12 FF #8#8	*1REF
15.	51394423	HOSE ASM 1/4X10.5 FF #4#4	*1REF
16.	51394579	HOSE ASM 3/8X22 FF #8#8	*1REF
17.	51394470	HOSE ASM 3/8X24 FF #8#8	*1REF
18.	51394386	HOSE ASM 1/2X51 FF #8#8	*1REF
19.	51394580	HOSE ASM 1/2X53 FF #8#8	1
20.	72532359	ADAPTER #10MSTR #8MJIC	2
21.	72063003	WASHER 3/8 WRT	2
22.	72532358	ADAPTER #8MSTR #8MJIC	8
23.	51394581	HOSE ASM 1/4X40.5 FF #4#4	*1REF
24.	72053764	ELBOW #10MSTR #8MJIC 90°	3
25.	72531206	ADAPTER #10MSTR #8FSTR	1
26.	72532666	ELBOW #8MSTR #8MJIC XLG	1
27.	51394584	HOSE ASM 1/4X91.5 FF #4#4	*1REF
28.	72060033	CAP SCR 5/16-18X3 HH GR5	3
29.	72062109	NUT 5/16-18 LOCK	3
30.	72060051	CAP SCR 3/8-16X2-1/4 HH GR5	2
31.	72062103	NUT 3/8-16 LOCK	2
32.	72532351	ADAPTER #4MSTR #4MJIC	2
33.	51714041	HOSE KIT (INCL: *)	1



21' OUTRIGGER OPTION (51714042 HOSE KIT)

HOSES ARE STRUCTURED TO BASE/OUTRIGGER FEATURES AND OPTIONS			
#8	51394576	HOSE-FT .30X195.00 OAL(6- 8)	2 REF
#9	51394577	HOSE-FT .30X141.00 OAL(6- 8)	2 REF
#	PART No.	DESCRIPTION	QTY

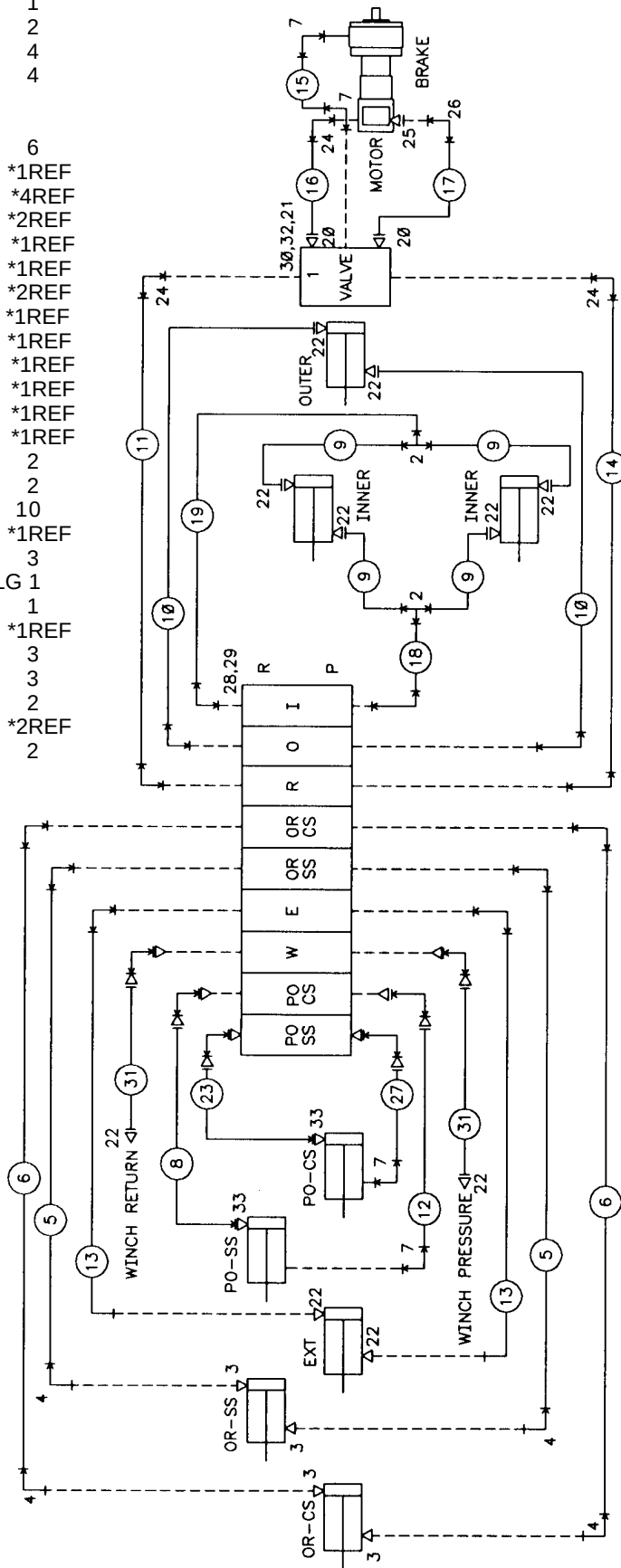
16' OUTRIGGER OPTION (51714043 HOSE KIT)

HOSES ARE STRUCTURED TO BASE/OUTRIGGER FEATURES AND OPTIONS			
#8	51394582	HOSE-FT .30X185.00 OAL(6- 8)	2 REF
#5	51393925	HOSE-FT .30X111.00 OAL(6- 8)	2 REF
#	PART No.	DESCRIPTION	QTY

HYDRAULIC KIT-9F (91713227)

ITEM	PART NO.	DESCRIPTION	QTY
1.	73054370	COUNTERBALANCE VALVE	1
2.	72531205	TEE #8MJIC 1/2TUBE	2
3.	72532355	ADAPTER #6MSTR #6MJIC	4
4.	72532772	ELBOW #6MJIC #6FJIC SWVL	4
5.		SEE HOSE CHART	
6.		SEE HOSE CHART	
7.	72053758	ELBOW #4MSTR #4MJIC 90°	6
8.	51394573	HOSE ASM 1/4X97.5 FF #4#4	*1REF
9.	51394578	HOSE ASM 1/2X43 FF #8#8	*4REF
10.	51394574	HOSE ASM 1/2X183 FF #8#8	*2REF
11.	51394575	HOSE ASM 3/8X15 FF #8#8	*1REF
12.	51394334	HOSE ASM 1/4X53.5 FF #4#4	*1REF
13.	51394118	HOSE ASM 1/2X267 FF #8#8	*2REF
14.	51394424	HOSE ASM 3/8X12 FF #8#8	*1REF
15.	51394423	HOSE ASM 1/4X10.5 FF #4#4	*1REF
16.	51394579	HOSE ASM 3/8X22 FF #8#8	*1REF
17.	51394470	HOSE ASM 3/8X24 FF #8#8	*1REF
18.	51394386	HOSE ASM 1/2X51 FF #8#8	*1REF
19.	51394580	HOSE ASM 1/2X53 FF #8#8	*1REF
20.	72532359	ADAPTER #10MSTR #8MJIC	2
21.	72063003	WASHER 3/8 WRT	2
22.	72532358	ADAPTER #8MSTR #8MJIC	10
23.	51394581	HOSE ASM 1/4X40.5 FF #4#4	*1REF
24.	72053764	ELBOW #10MSTR #8MJIC 90°	3
25.	72531206	ADAPTER #10MSTR #8MJIC XLG	1
26.	72532666	ELBOW #8MSTR #8MJIC XLG	1
27.	51394584	HOSE ASM 1/4X91.5 FF #4#4	*1REF
28.	72060033	CAP SCR 5/16-18X3 HHGR5	3
29.	72062109	NUT 5/16-18 LOCK	3
30.	72060051	CAP SCR 3/8-16X2-1/4 HHGR5	2
31.	51394583	HOSE ASM 1/2X303 FF #8#8	*2REF
32.	72062103	NUT 3/8-16 LOCK	2

33.	72532351	ADAPTER #4MSTR #4MJIC	2
34.	51714041	HOSE KIT (INCL: *)	1



21' OUTRIGGER OPTION (51714042 HOSE KIT)

HOSES ARE STRUCTURED TO BASE/OUTRIGGER FEATURES AND OPTIONS			
#6	51394576	HOSE-FF .38X195.00 OAL(6- 8)	2 REF
#5	51394577	HOSE-FF .38X141.00 OAL(5- 8)	2 REF
#	PART No.	DESCRIPTION	QTY

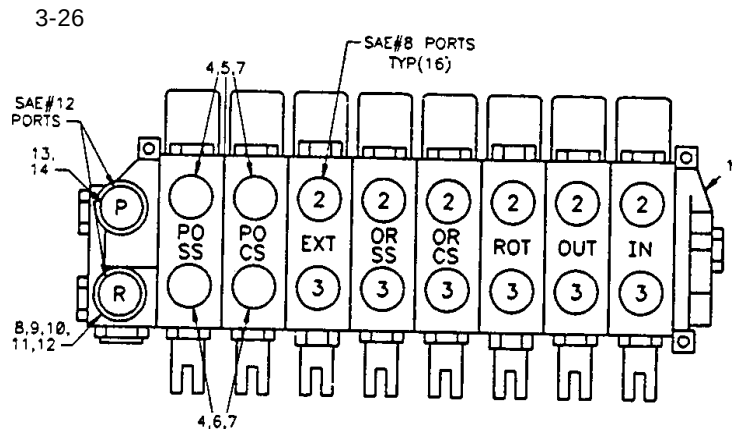
16' OUTRIGGER OPTION (51714043 HOSE KIT)

HOSES ARE STRUCTURED TO BASE/OUTRIGGER FEATURES AND OPTIONS			
#6	51394562	HOSE-FF .38X185.00 OAL(6- 8)	2 REF
#5	51394563	HOSE-FF .38X111.00 OAL(6- 8)	2 REF
#	PART No.	DESCRIPTION	QTY

18000/2595: 51711251.01.19961111

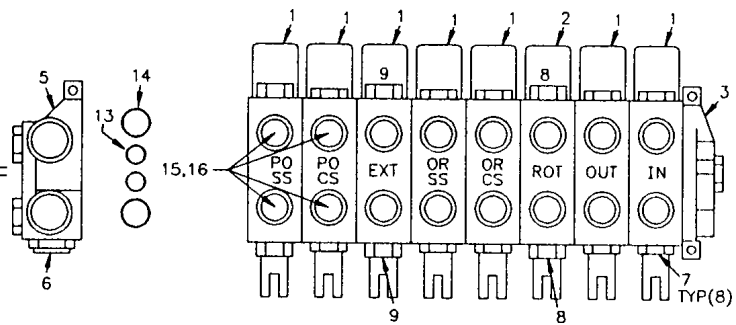
VALVEBANK ASM 8-SECT (51711251)

ITEM	PART NO.	DESCRIPTION	QTY
1.	51711252	VALVEBANK 8-SECT	1
2.	72053763	ELBOW #8MSTR #8MJIC XLG	6
3.	72532666	ELBOW #8MSTR #8MJIC 90°	6
4.	72533052	ADAPTER #8MSTR #6FSTR	4
5.	72532700	ELBOW #6MSTR #6MJIC XLG	2
6.	72053760	ELBOW #6MSTR #6MJIC 90°	2
7.	72532707	ADAPTER #4MJIC #6FJIC	4
8.	72053747	ADAPTER #12MSTR #8FPT	1
9.	72053141	PIPE NIPPLE #8 X CLOSE	1
10.	72053489	RED. COUPLING 1-1/4X3/4NPT	1
11.	72531135	SREET ELBOW 1-1/4NPT 90°	1
12.	72531196	BARB NIPPLE 1-1/4NPT 45°	1
13.	60107995	MODIFIED ELBOW	1
14.	72053245	PIPE PLUG 1/4NPT	1



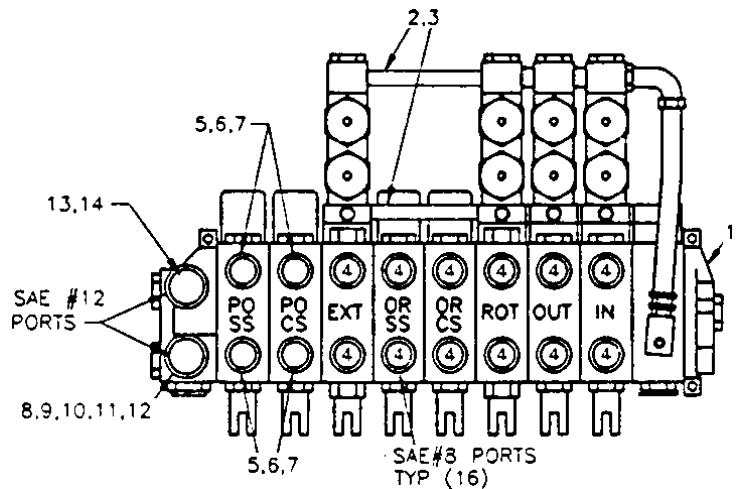
VALVEBANK 8-SECT (51711252)

ITEM	PART NO.	DESCRIPTION	QTY
1.	73054432	VALVE SECT 4-WAY SAE8	7
2.	73054452	VALVE SECT 4-WAY SAE8 W/BS	1
3.	73731241	END COVER RH W/CONV PLUG	1
5.	73731424	END COVER LH (INCL:6)	1
6.	73054673	RELIEF VALVE (PART OF 5)	1REF
7.	73054010	LOAD CHECK PLUG ASM	8
8.	73054007	RELIEF RC NON-ADJ 1800PSI	2
9.	73054400	RELIEF RC NON-ADJ 2300PSI	2
10.	73014668	STUD 3/8X17	3
11.	72062037	NUT 3/8-24 HEX	6
12.	51393494	O-RING KIT	REF
13.	7Q072117	O-RING	18
14.	7Q072119	O-RING	18
15.	70143140	ORIFICE PLATE	4
16.	70142403	ORIFICE SPRING	4



VALVEBANK ASM 8-SECT RMT (51711277)

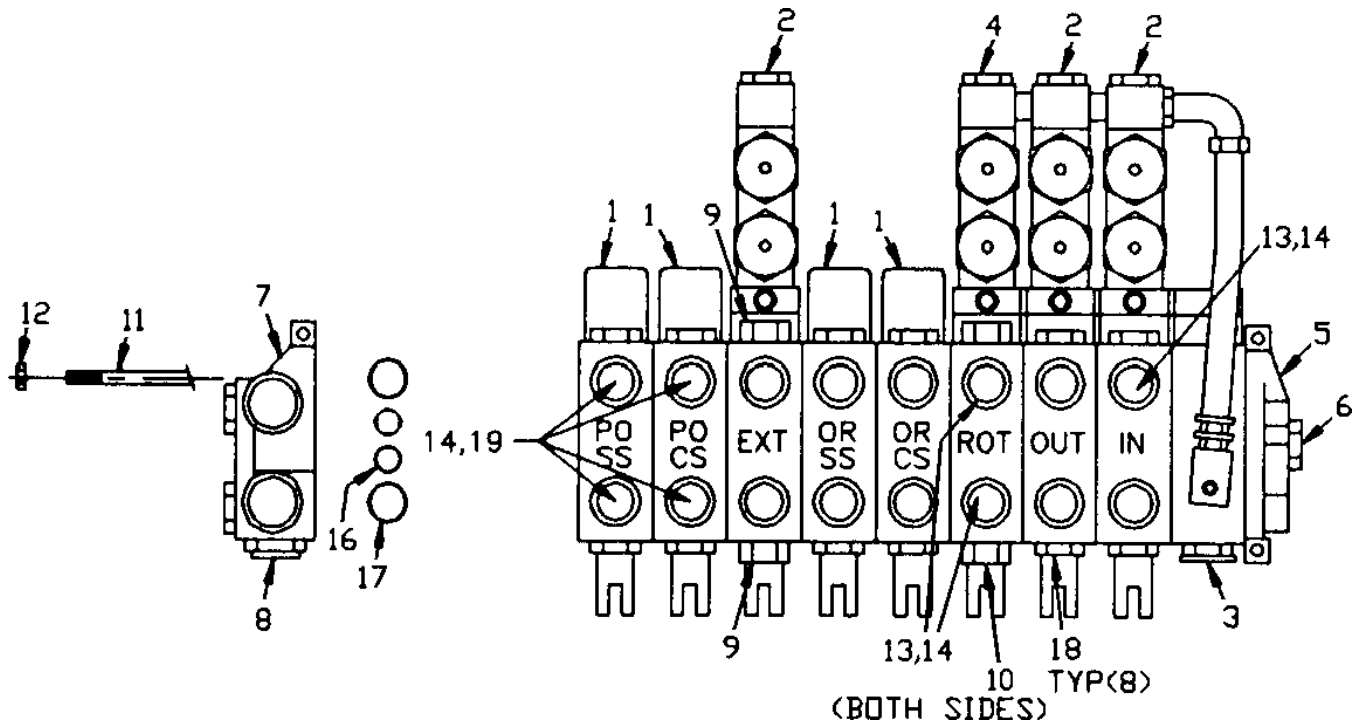
ITEM	PART NO.	DESCRIPTION	QTY
1.	51711267	VALVEBANK 8-SECT RC	1
2.	60025207	SPACER	2
3.	7Q092012	O-RING	2
4.	72053777	ELBOW #8MSTR #8MJIC 45°	12
5.	72533052	ADAPTER #8MSTR #6FSTR	4
6.	72053776	ELBOW #6MSTR #6MJIC 45°	4
7.	72532707	ADAPTER #4MJIC #6FJIC	4
8.	72053747	ADAPTER #12MSTR #8FPT	1
9.	72053141	PIPE NIPPLE #8 X CLOSE	1
10.	72053489	RED. COUPLING 1-1/4X3/4NPT	1
11.	72531135	STREET ELBOW 1-1/4NPT 90°	1
12.	72531196	BARB NIPPLE 1-1/4NPT 45°	1
13.	60107995	MODIFIED ELBOW	1
14.	72053245	PIPE PLUG 1/4NPT	1



VALVEBANK (51711267)

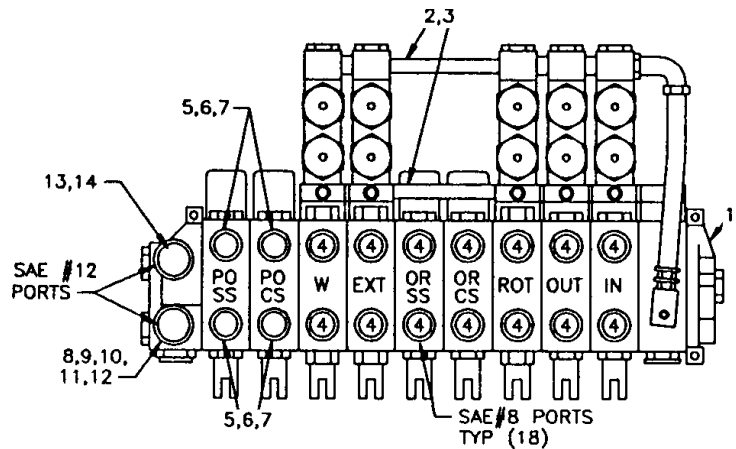
ITEM	PART NO.	DESCRIPTION	QTY
1.	73054432	VALVE SECT 4-WAY SAE8	4
2.	73054468	VALVE SECT 4-WAY SAE8	3
3.	73054502	VALVE SECT RC UTILITY	1
4.	73054482	VALVE SECT 4-WAY SAE8 W/BS	1
5.	73054442	END COVER RH	1
6.	73073022	CONVERSION PLUG	1
7.	73731424	END COVER LH	1
8.	73054643	RELIEF VALVE 2300PSI	1
9.	73054400	RELIEF RC NON-ADJ 2300PSI	2

10.	73054007	RELIEF RC NON-ADJ 1800PSI	2
11.	73014668	STUD 3/8X17	3
12.	72062037	NUT 3/8-24 HEX	6
13.	70142402	ORIFICE PLATE	3
14.	70142403	ORIFICE SPRING	7
15.	51393494	O-RING KIT	REF
16.	7Q072117	O-RING	18
17.	7Q072119	O-RING	18
18.	73054010	LOAD CHECK PLUG ASM	8
19.	70143140	ORIFICE PLATE	4



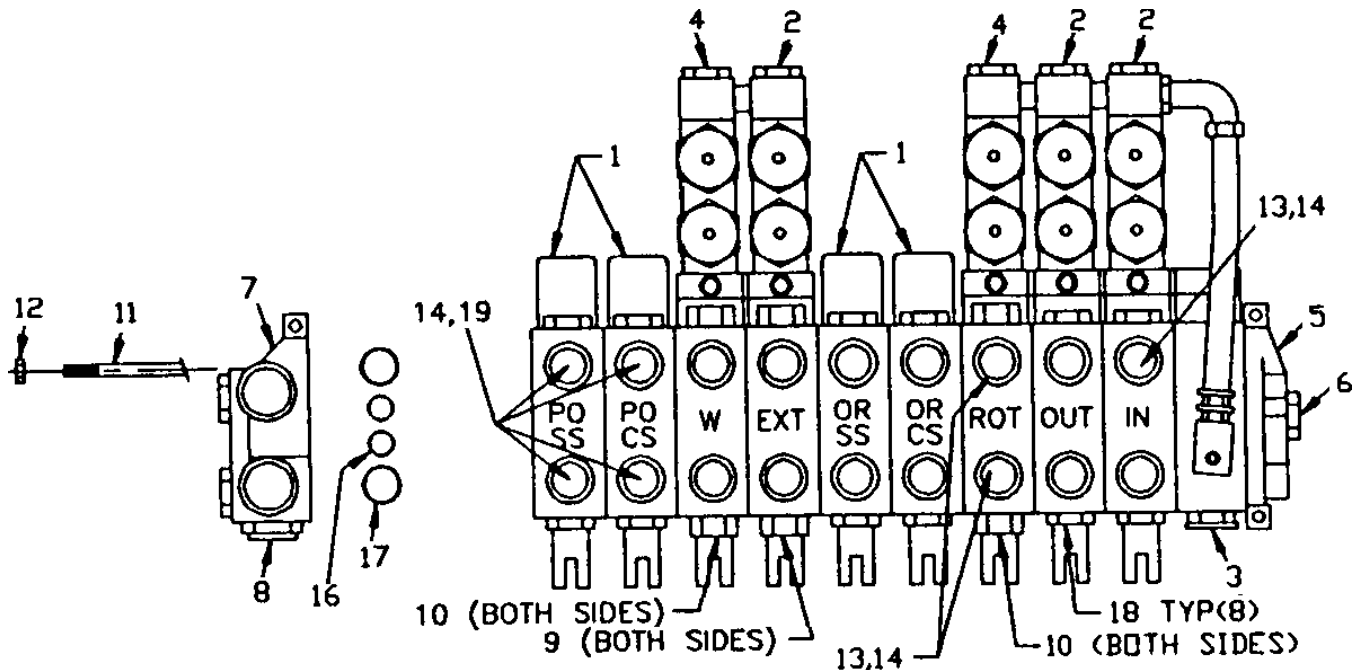
VALVEBANK ASM 9-SECT RMT (51712578)

ITEM	PART NO.	DESCRIPTION	QTY
1.	51712577	VALVEBANK 9-SECTION	1
2.	60025207	SPACER	2
3.	7Q092012	O-RING	2
4.	72053777	ELBOW #8MSTR #8MJIC 45°	14
5.	72533052	ADAPTER #8MSTR #6FSTR	4
6.	72053776	ELBOW #6MSTR #6MJIC 45°	4
7.	72532707	ADAPTER #4MJIC #6FJIC	4
8.	72053747	ADAPTER #12MSTR 3/4FPT	1
9.	72053141	PIPE NIPPLE 3/4 X CLOSE	1
10.	72053489	RED. COUPLING 1-1/4 3/4NPT	1
11.	72531135	STREET ELBOW 1-1/4NPT 90°	1
12.	72531196	BRBD NIPPLE 1-1/4NPT 1-1/4 45°	1
13.	60107995	ELBOW-MODIFIED	1
14.	72053245	PIPE PLUG 1/4NPT	1



VALVEBANK (51712577)

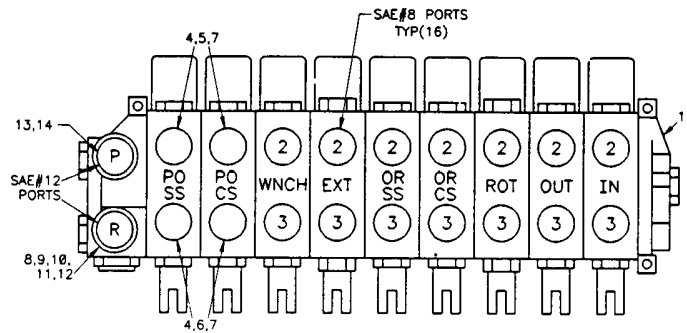
ITEM	PART NO.	DESCRIPTION	QTY
1.	73054432	VALVE SECT-MANUAL	4
2.	73054468	VALVE SECT-REMOTE	3
3.	73054502	VALVE SECT-UTILITY	1
4.	73054482	VALVE SECT-RMT W/BLDR SPL	2
5.	73054442	END COVER RH	1
6.	73073022	CONVERSION PLUG	1
7.	73731424	END COVER LH	1
8.	73054643	RELIEF VALVE 2300 PSI	1
9.	73054400	RELIEF-RC NON-ADJ 2300 PSI	2
10.	73054007	RELIEF-RC NON-ADJ 1800 PSI	4
1.	73014672	STUD 3/8X18-3/4	3
12.	72062037	NUT 3/8-24 HEX	6
13.	70142402	ORIFICE PLATE	3
14.	70142403	ORIFICE SPRING	7
15.	51393494	O-RING KIT	REF
16.	7Q072117	O-RING	20
17.	7Q072119	O-RING	20
18.	73054010	LOAD CHECK PLUG ASM	8
19.	70143140	ORIFICE PLATE	4



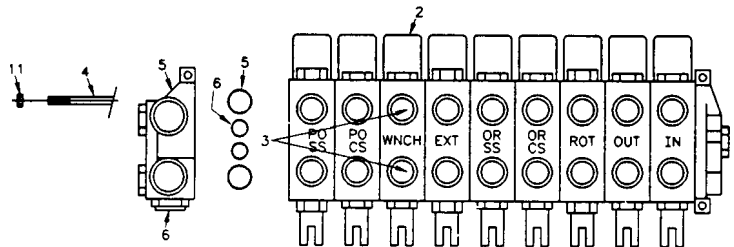
VALVEBANK ASM 9-SECT MNL
(51713230)

3-29

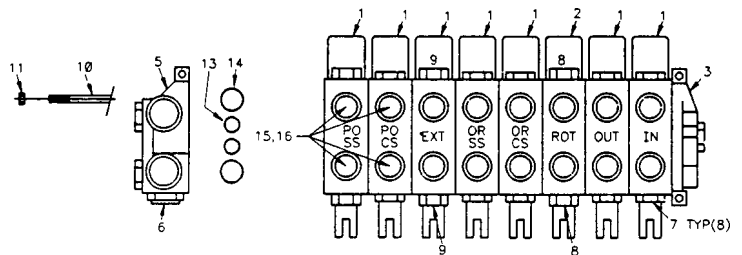
ITEM	PART NO.	DESCRIPTION	QTY
1.	51713229	VALVEBANK 9-SECTION	1
2.	72053763	ELBOW #8MSTR #8MJIC XLG	7
3.	72532666	ELBOW #8MSTR #8MJIC 90°	7
4.	72533052	ADAPTER #8MSTR #6FSTR	4
5.	72532700	ELBOW #6MSTR #6MJIC XLG	2
6.	72053760	ELBOW #6MSTR #6MJIC 90°	2
7.	72532707	ADAPTER #4MJIC #6FJIC	4
8.	72053747	ADAPTER #12MSTR #8FPT	1
9.	72053141	NIPPLE #8 X CL	1
10.	72053489	REDUCER COUPLING 1-1/4X3/4	1
11.	72531135	STREET ELBOW 1-1/4NPT 90°	1
12.	72531196	BARB NIPPLE 1-1/4NPT 1-1/4 45°	1
13.	60107995	ELBOW-MODIFIED	1
14.	72053245	PIPE PLUG 1/4NPT	1

**VALVEBANK (51713229)**

ITEM	PART NO.	DESCRIPTION	QTY
1.	51711252	VB ASM	1
2.	73054452	VALVE SECT 4-WAY BS 1800RC	1
3.	73054007	RELIEF 1800PSI NON-ADJ	2
4.	73014672	STUD 3/8X18-3/4	3
5.	7Q072119	O-RING	2
6.	7Q072117	O-RING	2

**VALVEBANK (51711252)**

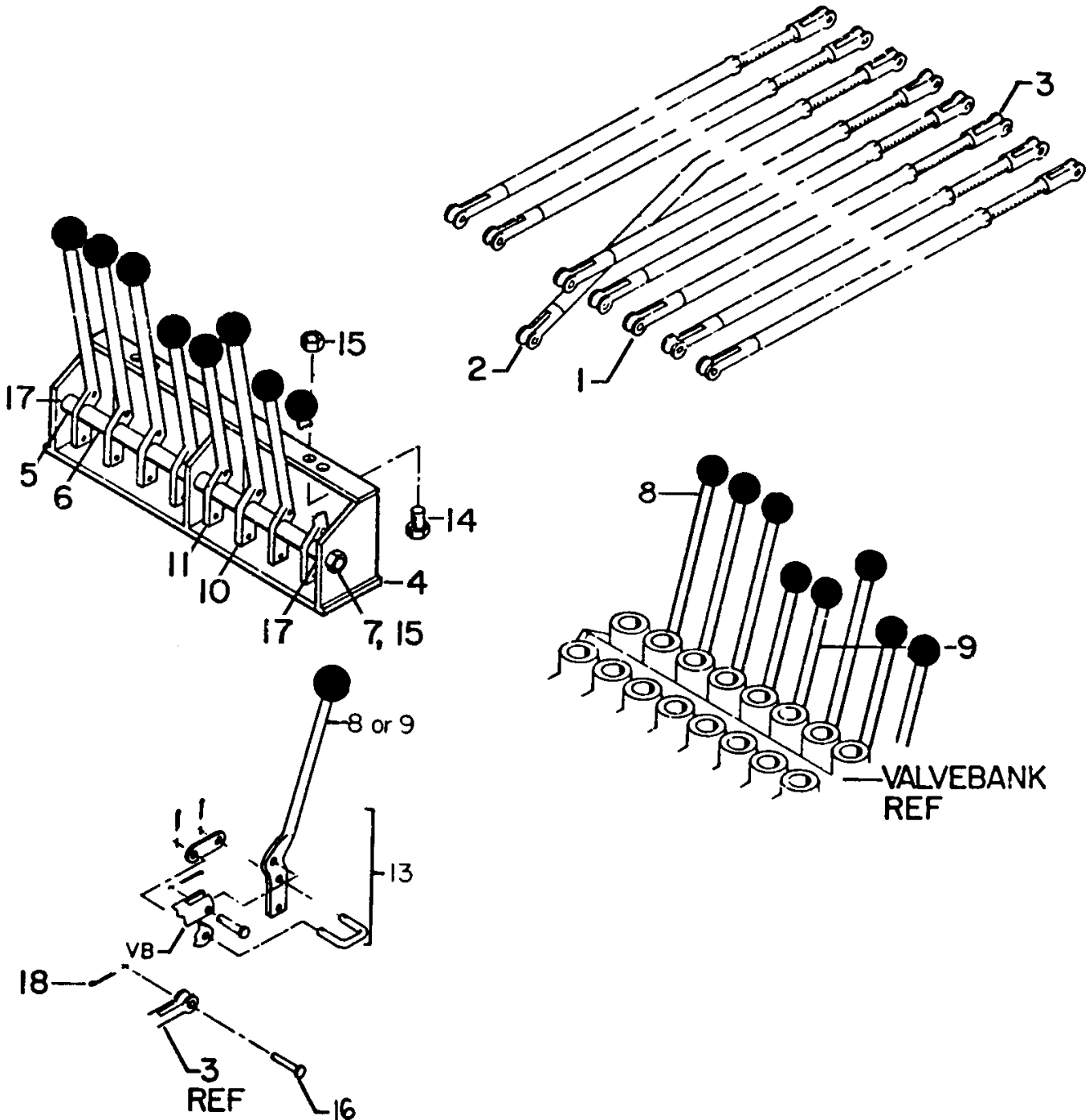
ITEM	PART NO.	DESCRIPTION	QTY
1.	73054432	VALVE SECT 4-WAY SAE#8	7
2.	73054452	VALVE SECT 4-WAY BS SAE#8	1
3.	73731241	END COVER-RH W/CONV PLUG	1
5.	73731424	END COVER-LH 2300PSI	1
6.	73054673	RELIF VLV 2300 PSI (PART OF 5)	1 REF
7.	73054010	LOAD CHECK PLUG ASM	8
8.	73054007	RELIEF 1800PSI NON-ADJ	2
9.	73054400	RELIEF 2300PSI NON-ADJ	2
10.	73014668	STUD 3/8X17	3
11.	72062037	NUT 3/8-24 HEX	6
12.	51393494	O-RING KIT	REF
13.	7Q072117	O-RING	18
14.	7Q072119	O-RING	18
15.	70143140	ORIFICE PLATE	4
16.	70142403	SPRING-ORICE	4



CONTROL KIT-MNL 8F (91711258)

ITEM	PART NO.	DESCRIPTION	QTY
1.	52702016	CONTROL ROD-F	7
2.	52702017	CONTROL ROD BENT-F	1
3.	52702018	CONTROL ROD-M	8
4.	52702777	DUMMY VALVEBANK	1
5.	60030045	SPACER 5/8	4
6.	60030046	SPACER 1-1/2	6
7.	60105503	ROD	1
8.	70141982	CONTROL HANDLE-LONG VB	4

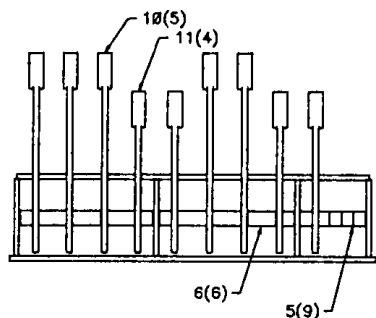
9.	70141983	CONTROL HANDLE-SHORT VB	4
10.	70141984	CONTROL HANDLE-LONG DVB	4
11.	70141985	CONTROL HANDLE-SHORT DVB	4
13.	94731839	LINK & PIN KIT	8
14.	72060025	CAP SCR 5/16-18X1 HH GR5	2
15.	72062109	NUT 5/16-18 LOCK	4
16.	72066338	CLEVIS PIN	16
17.	72063002	WASHER 5/16 WRT	2
18.	72066168	COTTER PIN .09X.75	16



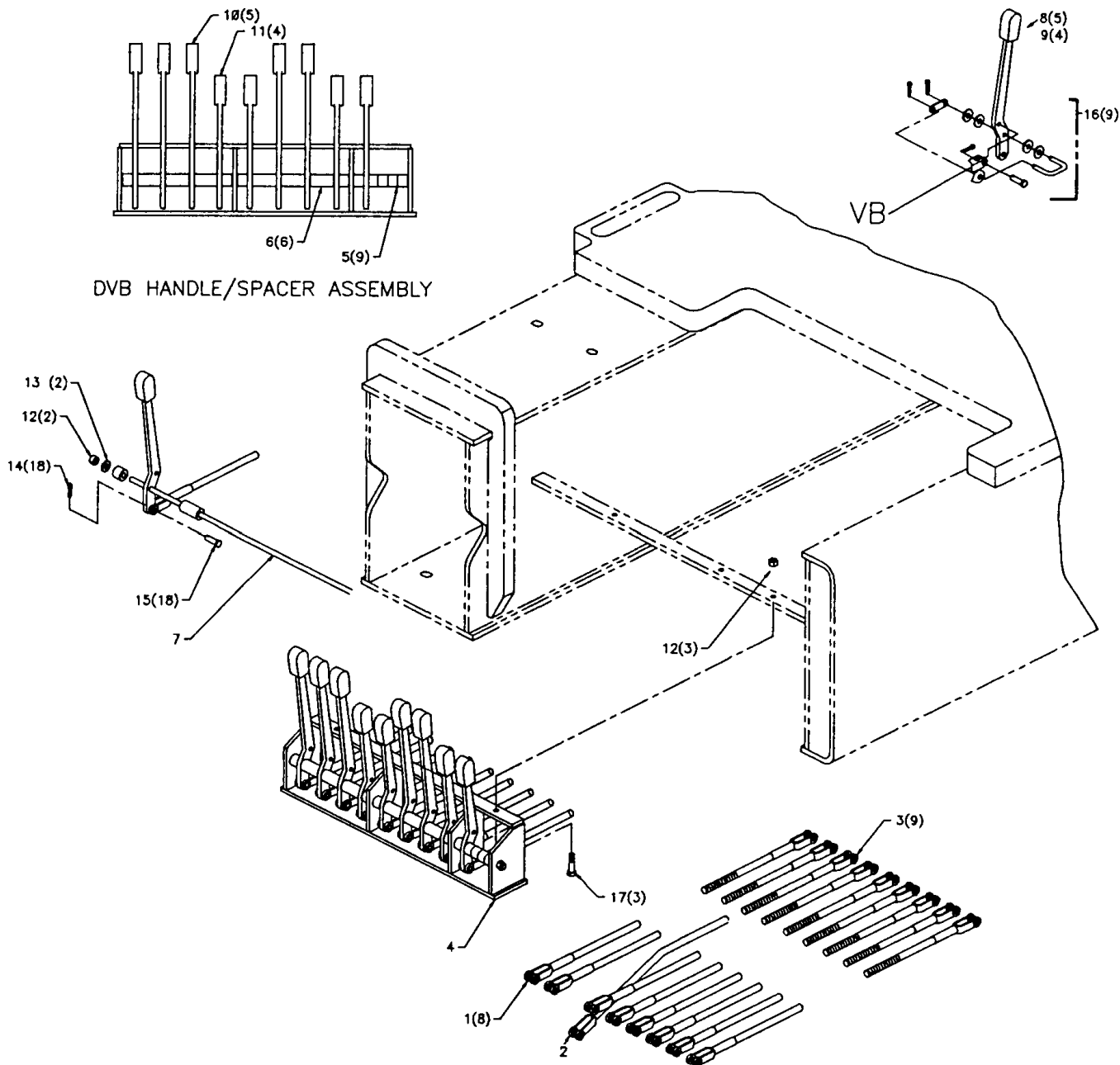
CONTROL KIT-MNL 9F (90713228)

ITEM	PART NO.	DESCRIPTION	QTY
1.	52702016	CONTROL ROD-FEMALE	8
2.	52702017	CONTROL ROD-BENT FEMALE	1
3.	52702018	CONTROL ROD-MALE	9
4.	52710602	DUMMY VALVEBANK	1
5.	60030045	SPACER 5/8	9
6.	60030046	SPACER 1-1/2	6
7.	60115353	ROD-DUMMY VB	1
8.	70141982	CONTROL HANDLE-LONG VB	5

9.	70141983	CONTROL HANDLE-SHORT VB	4
10.	70141984	CONTROL HANDLE-LONG DVB	5
11.	70141985	CONTROL HANDLE-SHORT DVB	4
12.	72062109	NUT 5/16-18 LOCK	5
13.	72063002	WASHER 5/16 WRT	2
14.	72066168	COTTER PIN .09X3/4 PLAIN	18
15.	72066338	PIN-CLEVIS 5/16X1 PLAIN	18
16.	94731839	LINK & PIN KIT	9
17.	72060025	CAP SCR 5/16=18X1 HHGR5	3



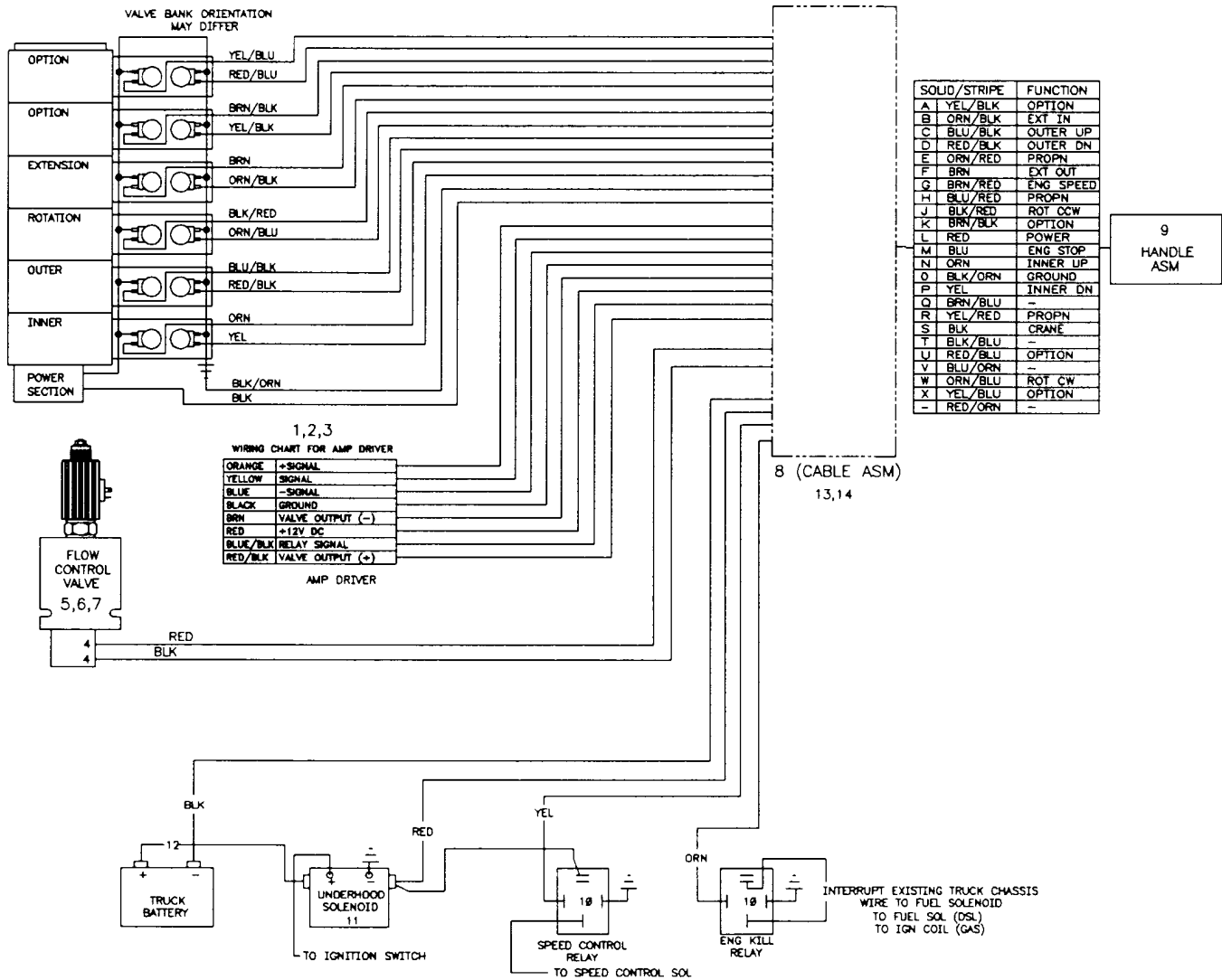
DVB HANDLE/SPACER ASSEMBLY



PROP'L RMT CTRL KIT V20R 4R/4M **(90713574)**

ITEM	PART NO.	DESCRIPTION	QTY
1.	77041390	AMP DRIVER	1
2.	72060703	CAP SCR 1/4-20X1/2 SH	2
3.	72063049	WASHER 1/4 LOCK	2
4.	77040186	TERM 1/4 FSLPON 16-14GA	2
5.	73054876	FLOW VALVE	1
6.	72060051	CAP SCR 3/8-16X2-1/4 HHGR5	2

7.	72062103	NUT 3/8-16 LOCK	2
8.	51713570	CABLE ASM	1
9.	51713429	HANDLE ASM	1
10.	77041251	RELAY	2
11.	77041237	SOLENOID 12V	1
12.	51704784	CABLE ASM #1WIRE X 6	1
13.	72060004	CAP SCR 1/4-20X1 HHGR5	4
14.	72062104	NUT 1/4-20 LOCK	4
15.	60119977	MTG PLT-JIC BOX (NOT SHWN)	1

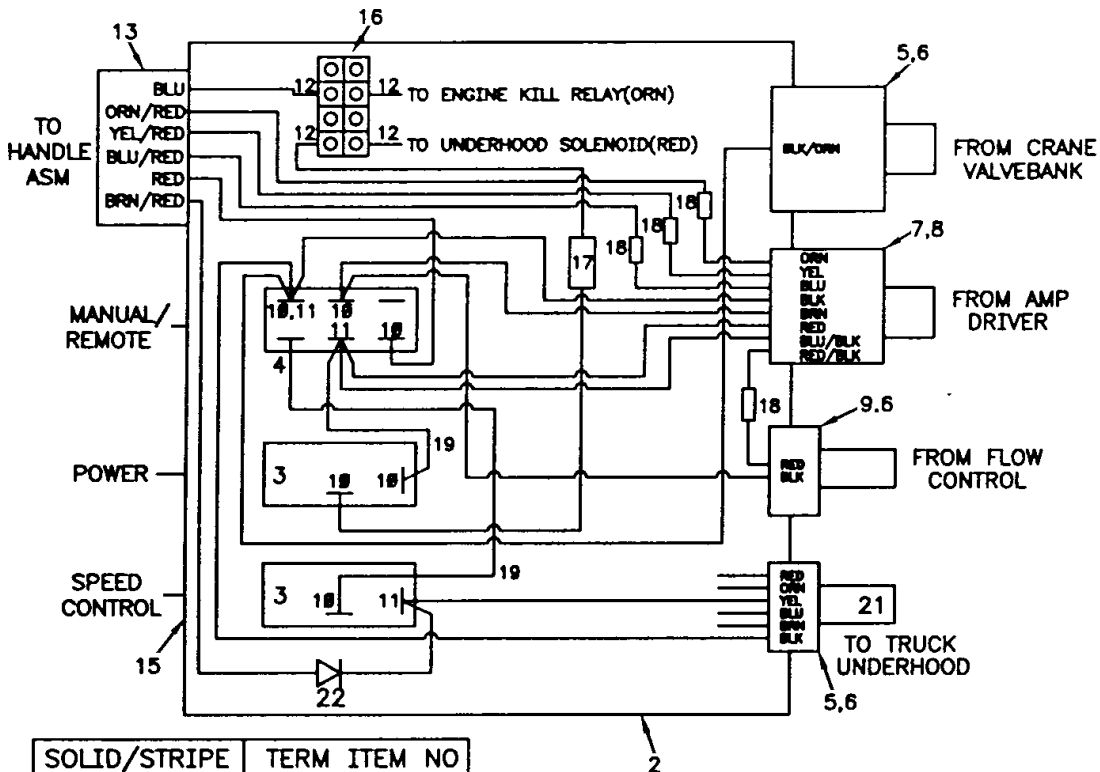


PROP'L RMT HANDLE ASM (51713429)

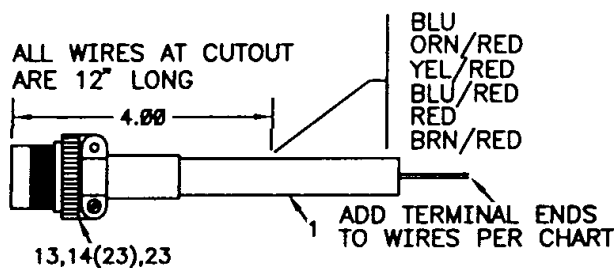
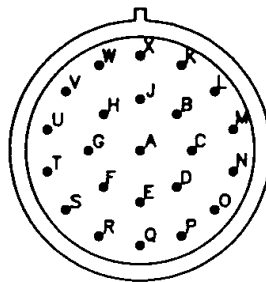
16.	77040371	TOGGLE SWITCH SPST	1
17.	77040372	TOGGLE SWITCH SPDT	6
18.	77040373	TOGGLE SWITCH SPST	2
20.	77044579	CONNECTOR	1
21.	89044100	CABLE 18GA/24WIRE X 45FT	1
22.	77040047	TERM MSLPON(PART OF 11)	3REF
23.	77040186	TERM 1/4 FSLPON 16-14GA	3
24.	60111142	MTG BRACKET	1
25.	72060669	CAP SCR #10-32X5/8 SH	1
26.	72060636	CAP SCR #10-24X3/4 SH	2
27.	72062106	NUT #10-24 LOCK	2
28.	70143223	SPRING	1
29.	72061000	SHT MTL SCR #6X1/2 PH	1
30.	77044196	CONNECTOR	1

12.	77040051	TERMI #8 SPRSPD 16-14GA	4
13.	77044620	CONNECTOR	1
14.	77044580	SOCKET	23
15.	70393257	DECAL-JIC BOX	1
16.	77044341	TERMINAL BLOCK-4	1
17.	77041056	FUSE 20A IN-LINE	1
18.	77040048	BUTT CONNECTOR 16-14GA	4
19.	89044232	WIRE 14GA RED X 3	2
20.	77044668	PLUG-SEAL	1
21.	89044354	CABLE 14GA/6WIRE	84"
22.	77041423	DIODE	1
23.	77044667	PLUG-CAP	1

ITEM	PART NO.	DESCRIPTION	QTY
1.	89044100	CABLE 18GA/24WIRE	50"
2.	90713575	JIC BOX	1
3.	77041345	TOGGLE SWITCH ST	2
4.	77041354	TOGGLE SWITCH DT	1
5.	77044018	STRAIN RELIEF 1/2	2
6.	77044201	NUT 1/2 ELEC LOCK	3
7.	77044196	STRAIN RELIEF 3/4	1
8.	77044202	NUT 3/4 ELEC LOCK	1
9.	77044468	STRAIN RELIEF 1/8-1/4	1
10.	77040186	TERMI 1/4 FSLPON 16-14GA	25
11.	77040282	TERMI 1/4 PIGBAC 16-14GA	3



SOLID/STRIPE	TERM	ITEM NO
A YEL/BLK		10
B ORN/BLK		10
C BLU/BLK		10
D RED/BLK		10
E ORN/RED		10
F BRN		10
G BRN/RED		10
H BLU/RED		10
J BLK/RED		10
K BRN/BLK		10
L RED		10
M BLU		12
N ORN		10
O 20		—
P YEL		10
Q BRN/BLU		—
R YEL/RED		10
S BLK		10
T BLK/BLU		—
U RED/BLU		10
V BLU/ORN		—
W ORN/BLU		10
X YEL/BLU		10
— RED/ORN		—



OPTION-HYD OVERLOAD KIT 3F **(51710923)**

ITEM	PART NO.	DESCRIPTION	QTY
1.	72532657	TEE #8JIC SWVL NUT RUN	5
2.	72532658	ELBOW #8MJIC #8FJIC	5
3.	72053763	ELBOW #8MSTR #8MJIC 90°	3
4.	72532358	ADAPTER #8MSTR #8MJIC	3
5.	73054426	RELIEF VALVE	1
6.	72532366	ADAPTER #12MSTR #12MJIC	2
7.	72532950	TEE #12JIC SWVL NUT RUN	2
8.	72532696	ELBOW #12MJIC #12FJIC SWVL	2
9.	72532972	ADAPTER #8MJIC #12FJIC	2
10.	51706238	HOSE ASM 3/4X6 FF	1
11.	73054576	SOLENOID VALVE	3
12.	72532358	ADAPTER #8MSTR #8MJIC	2
13.	51706239	HOSE ASM 1/2X5 FF	1
14.	51706443	HOSE ASM 3/8X53 FF	4
15.	51703701	HOSE ASM 3/8X10 FF	2
16.	77040186	TERM-FSLPON 1/4TAB 16-14GA	8
17.	77040282	TERM-PIGBAC 1/4TAB 16-14GA	4
18.	60250259	MTG ANGLE-DUMP VALVE	2
19.	60250260	MTG SPACER-DUMP VALVE	2
20.	72060004	CAP SCR 1/4-20X1 HH GR5	4
21.	72062104	NUT 1/4-20 LOCK	6
22.	60117338	THREADED ROD 1/4-20X6-1/2	2
23.	89044232	WIRE 14GA RED X 180	1
24.	89044232	WIRE 14GA RED X 120	1
25.	89044232	WIRE 14GA RED X 6	2
26.	89044274	WIRE 14GA BLK X 60	1
27.	89044274	WIRE 14GA BLK X 6	2

NOTES:

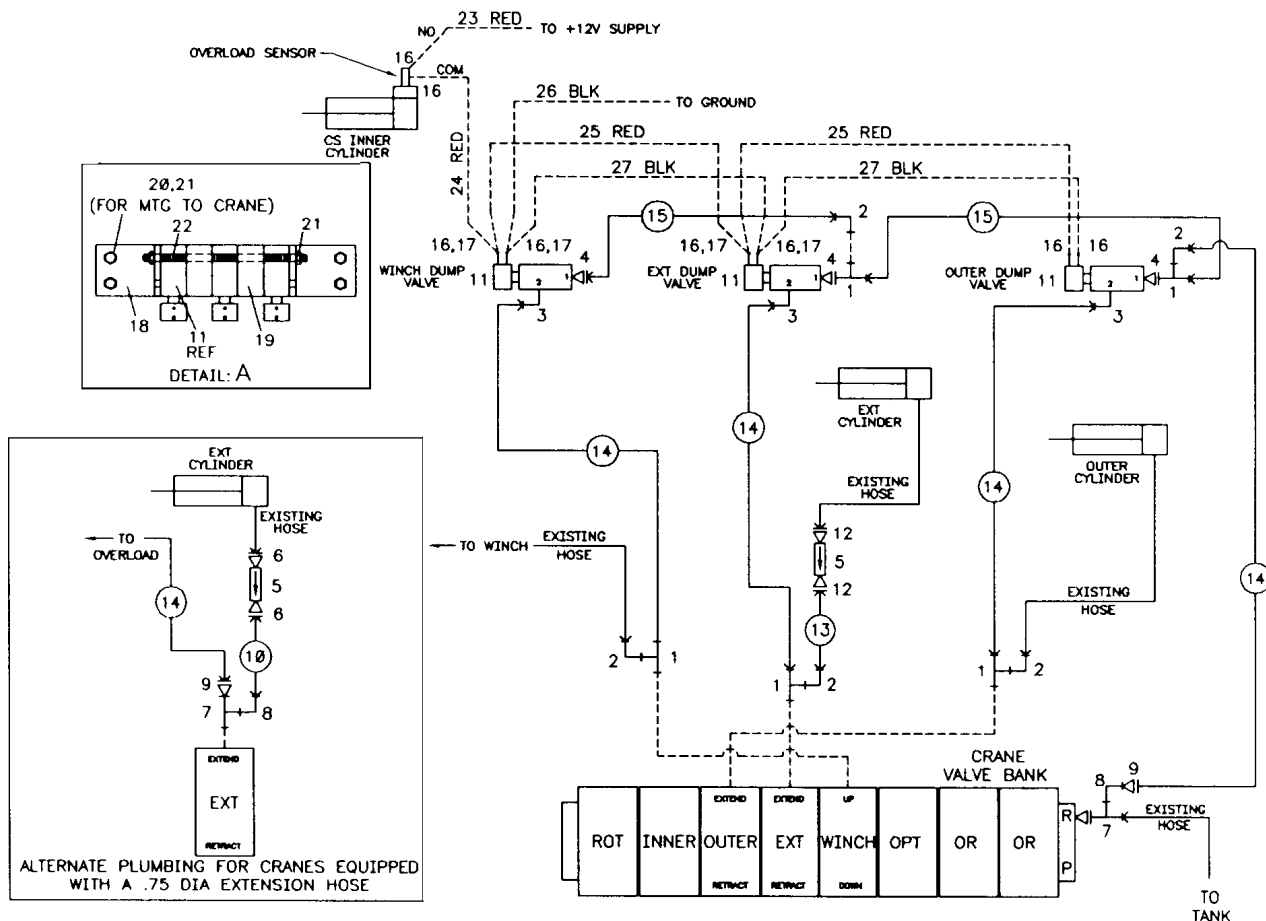
1. FUNCTION OF SYSTEM IS SUCH THAT WHEN THE INNER CYLINDERS ARE OVERLOADED, THE PRESSURE SWITCH, MOUNTED ON THE INNER CYLINDER, WILL ACTIVATE THE SOLENOID DUMP VALVE(S); THUS DUMPING OIL TO "TANK" INSTEAD OF THE OUTER CYLINDER "EXTEND", EXTENSION CYLINDER "EXTEND", OR WINCH "UP" FUNCTIONS WHICH WILL NOT ALLOW PRESSURE TO BUILD FOR THESE FUNCTIONS. THIS SYSTEM IS BASED ON THE FACT THAT THE OIL WILL TAKE THE PATH OF LEAST RESISTANCE.

2. THE FUNCTIONS THAT ARE SHUT DOWN, IF OVERLOADED, ARE THE FOLLOWING:

- A. OUTER BOOM "EXTEND"
- B. EXTENSION CYLINDER "EXTEND"
- C. WINCH "UP"

3. INSTALL A RELIEF VALVE IN THE EXTEND LINE OF THE EXTENSION CYLINDER SO CYLINDER WILL NOT EXTEND WHEN DUMP SYSTEM IS ACTIVATED.

4. ITEMS 11, 18, 19, 20, 21 AND 22 SHOULD BE BOLTED TOGETHER BEFORE THEY ARE MOUNTED TO THE CRANE (SEE DETAIL A).



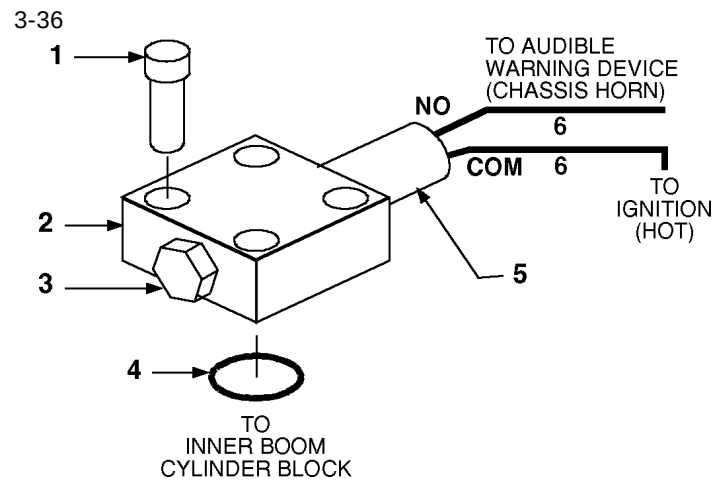
18000/2595: 31705698.01.19961111

CAPACITY ALERT KIT-AUDIBLE (31705698)

ITEM	PART NO.	DESCRIPTION	QTY
1.	72060731	CAP SCR 5/16-18X3/4 SH	4
2.	60025221	MANIFOLD	1
3.	72532140	PLUG 9/16-18 STR THD HH	1
4.	7Q072015	O-RING	1
5.	77041283	PRESSURE SWITCH	1
6.	89044188	WIRE-14GA (Customer Supplied)	REF
7.	99900118	INSTALLATION DWG	1

NOTE

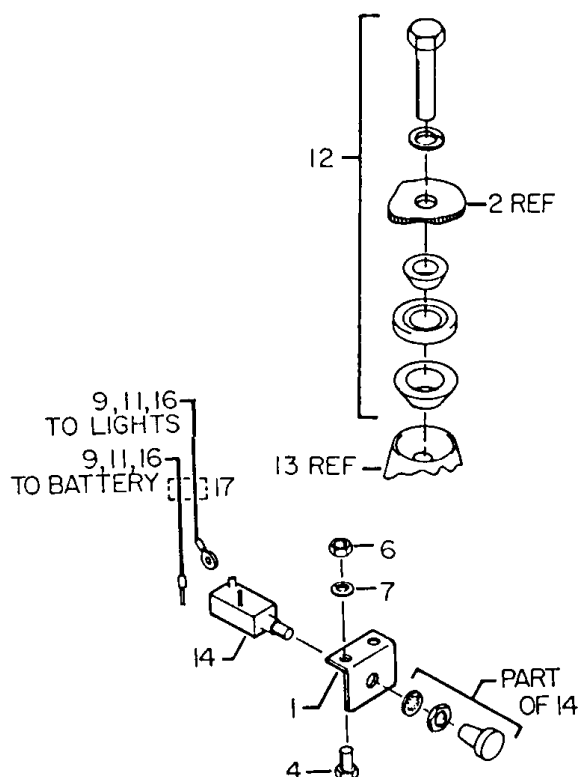
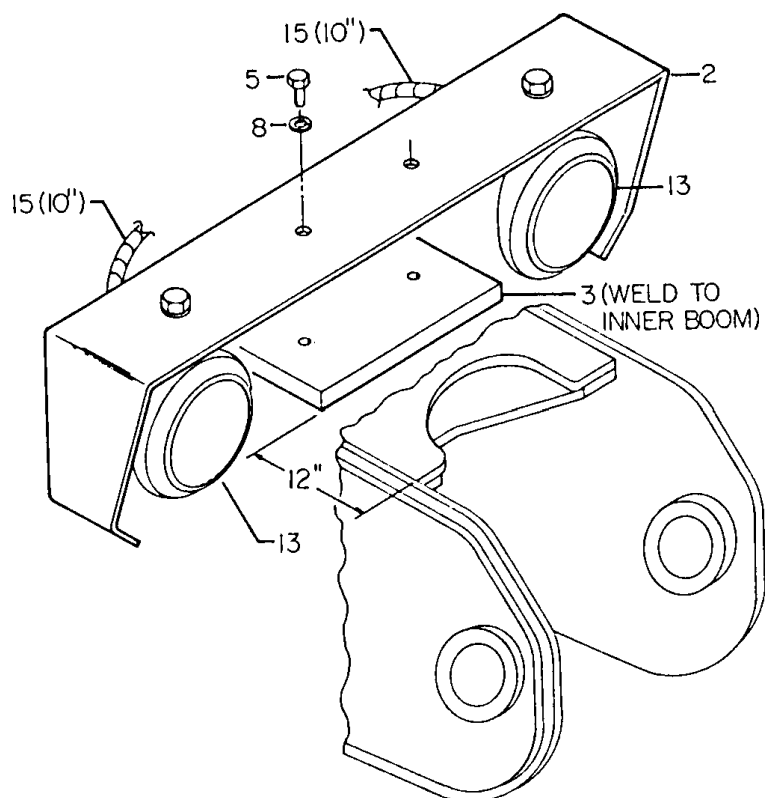
This capacity alert system consists of a pressure switch mounted on the lift side of the inner boom lift cylinder which senses hydraulic pressure. It is to be connected electrically (by the customer) to an audible warning device such as the truck chassis horn, using 14-gauge wire.



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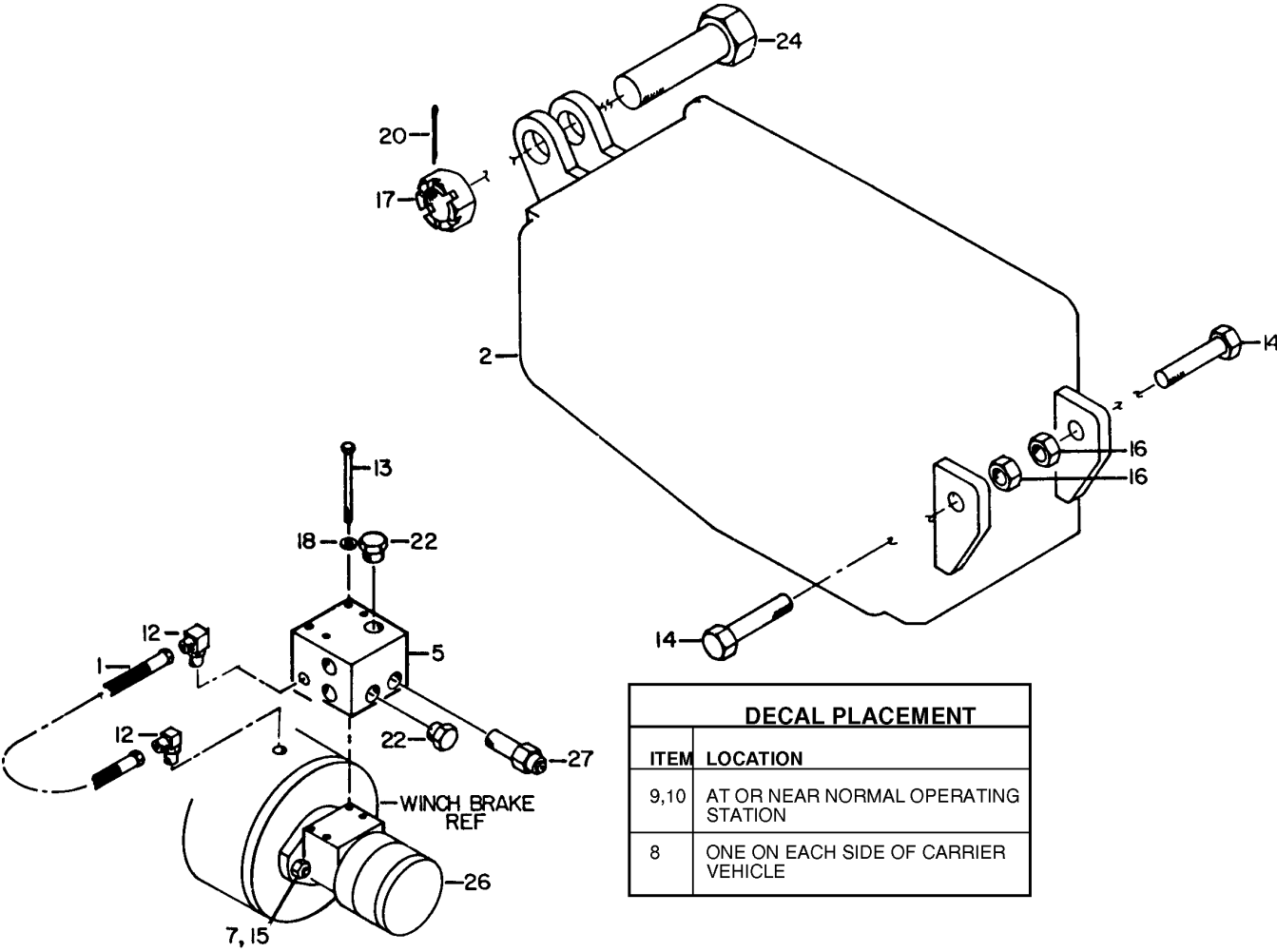
8.	72063051	WASHER 3/8 LOCK	2
9.	70040000	TERMINAL #10 STUD 16-14GA	2
11.	77040048	BUTT CONNECTOR 16-14GA	2
12.	77040280	MOUNTING KIT	2REF
13.	77040281	FLOOD LIGHT 12V CHROME	2
14.	77041014	SWITCH PUSH-PULL	1
15.	89034048	SPIRAL WRAP	20"
16.	89044001	WIRE 14GA	24'
17.	89044351	LOOM	12'

ITEM	PART NO.	DESCRIPTION	QTY
1.	60103535	SWITCH BRACKET	1
2.	60105650	LIGHT GUARD	1
3.	60105651	MOUNTING PLATE	1
4.	72060000	CAP SCR 1/4-20X1/2 HH GR5	2
5.	72060046	CAP SCR 3/8-16X1 HH GR5	2
6.	72062000	NUT 1/4-20 HEX	2
7.	72063049	WASHER 1/4 LOCK	2



OPTION -WINCH KIT (31704209)

ITEM	PART	DESCRIPTION	QTY			
1.	51703592	HOSE ASM 1/4X10	1	15.	72062080	NUT 1/2-13 LOCK 2
2.	52703942	WINCH WELDMENT	1	16.	72062120	NUT 7/8-9 LOCK 2
5.	73054496	FLOW DIVIDER (INCL:27)	1	17.	72062135	NUT 1 3/4-5 SLOTTED 1
7.	60106032	STUD 1/2-13X2	2	18.	72063050	WASHER 5/16 LOCK 4
8.	70392868	DECAL-DANGER LOADLINE	4	20.	72066198	COTTER PIN .19X3 1
9.	70392863	DECAL-DGR HOISTING PERS	2	22.	72532141	PLUG 3/4MSTR HEX 2
10.	70392861	DECAL-DANGER 2-BLOCKING	2	24.	60111638	CAP SCR 1 3/4-5X6 HHGR8 1
12.	72053758	ELBOW 7/16MSTR 7/16MJIC 90°	2	26.	73051391	HYDRAULIC MOTOR 1
13.	72060037	CAP SCR 5/16-18X4 HH GR5	4	27.	73054470	VALVE (PART OF 5) 1REF
14.	72601148	CAP SCR 7/8-9X3 HH GR8	2	29.	72060048	CAP SCR 3/8-16X1-1/2 HH GR5
					(SEE DWG 99900238)	1
				30.	99900238	BOOM MODIFICATION DWG 1

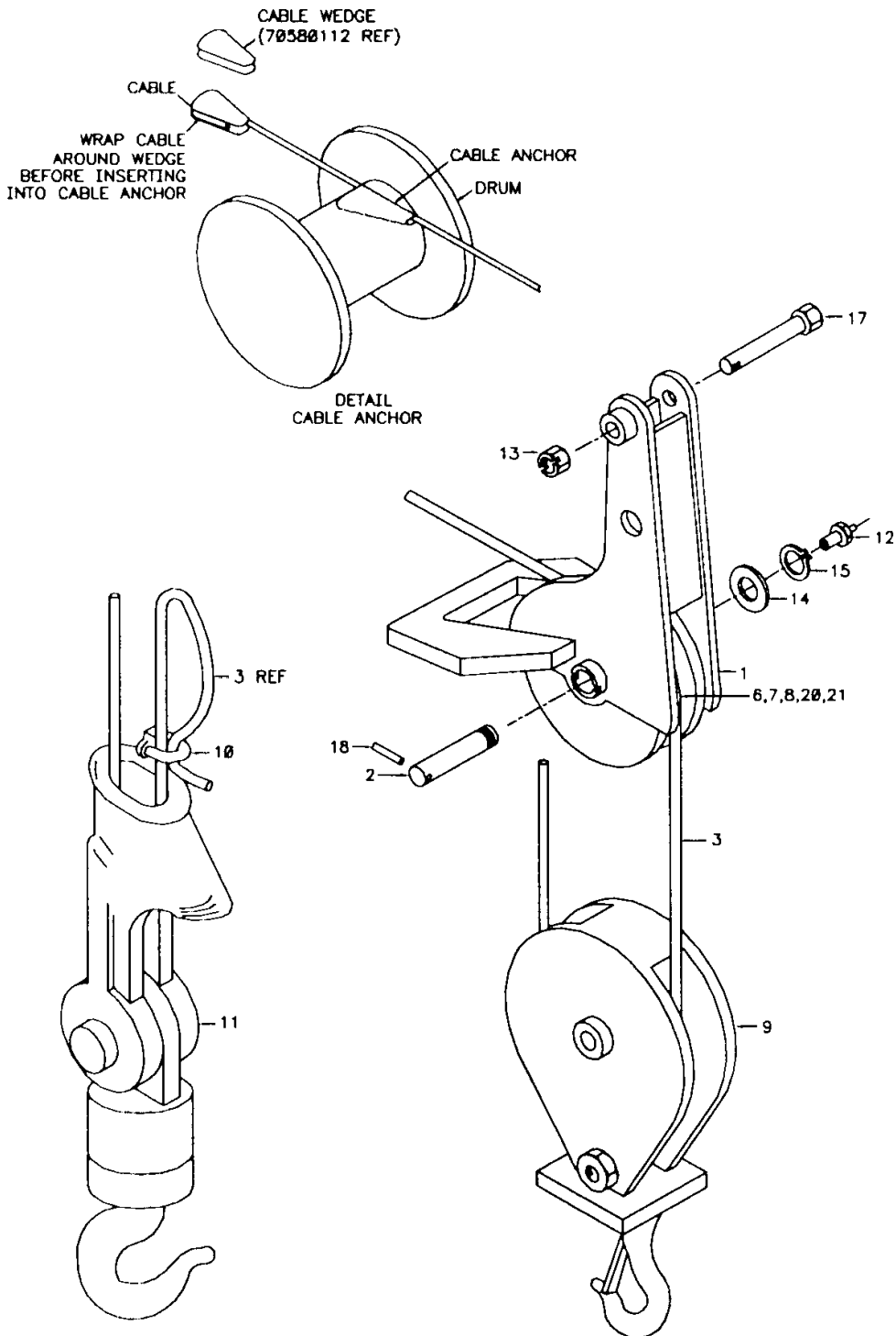


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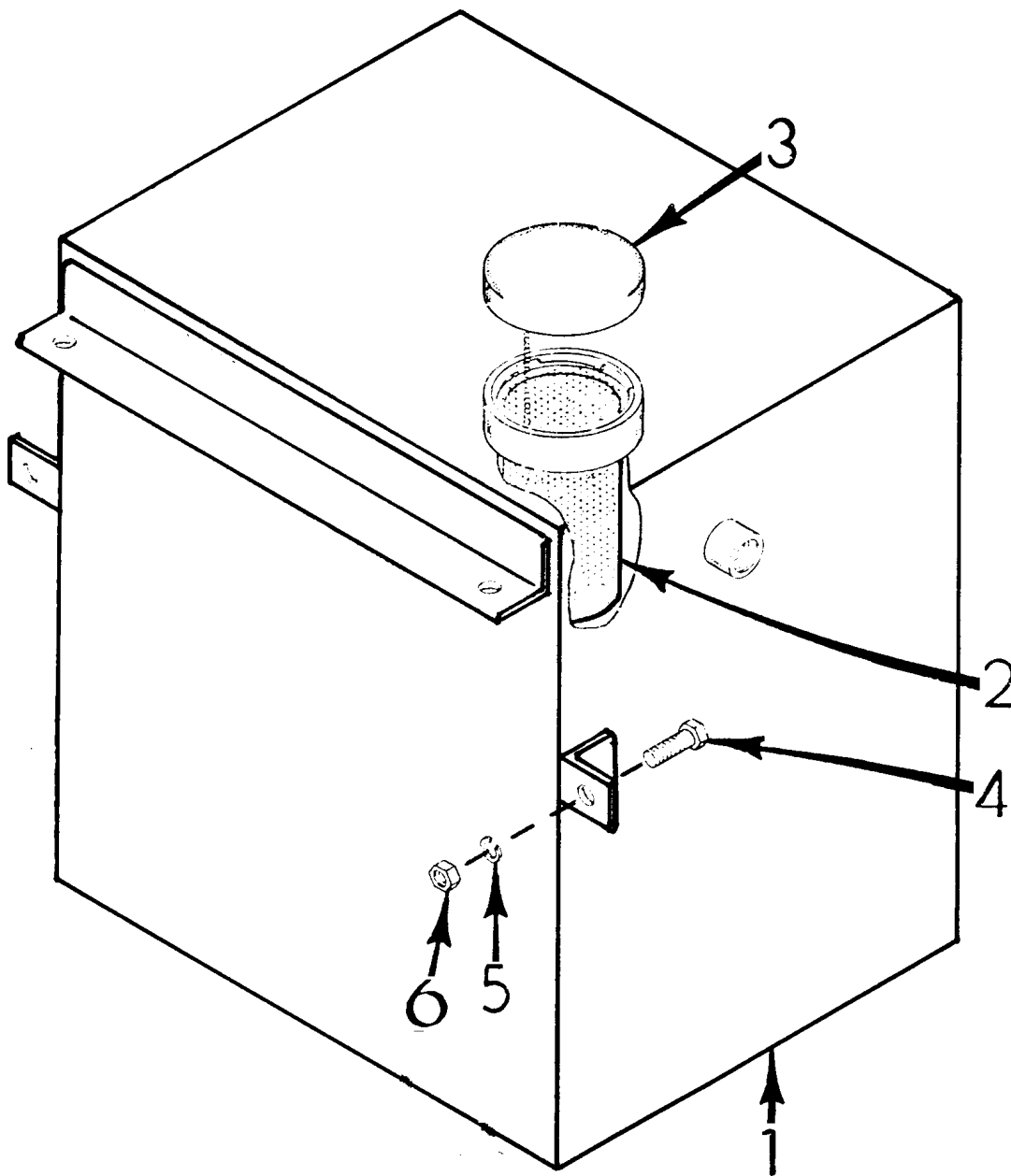
CABLE & HOOK KIT 9/16" X 80'
(31704406)

ITEM	PART	DESCRIPTION	QTY	12.	72053508	ZERR 1/8NPT	1
1.	52702667	SHEAVE HOLDER	1	13.	72062135	NUT 1 3/4-5 SLOTTED	2
2.	60105306	PIN	1	14.	72063035	MACH BUSHING 1-1/4X10GA NR	1
3.	60107296	CABLE 9/16" IWRC X 80'	1	15.	72066129	RETAINING RING 1-1/4 HD EXT	1
6.	51709058	SHEAVE (INCL:7,8,20,21)	1	17.	72601149	CAP SCR 1 3/4-5X9 HH GR5	2
7.	70055024	BEARING (PART OF 6)	1REF	18.	72661155	GROOVE PIN 1/2X2	1
8.	70055025	RACE (PART OF 6)	1REF	20.	60020218	BUSHING (PART OF 6)	2REF
9.	70056253	SNATCH BLOCK 8-TON	1	21.	70034365	SHEAVE 14" (PART OF 6)	1REF



**OPTION-AUX RESERVOIR-30 GAL
(31701760)**

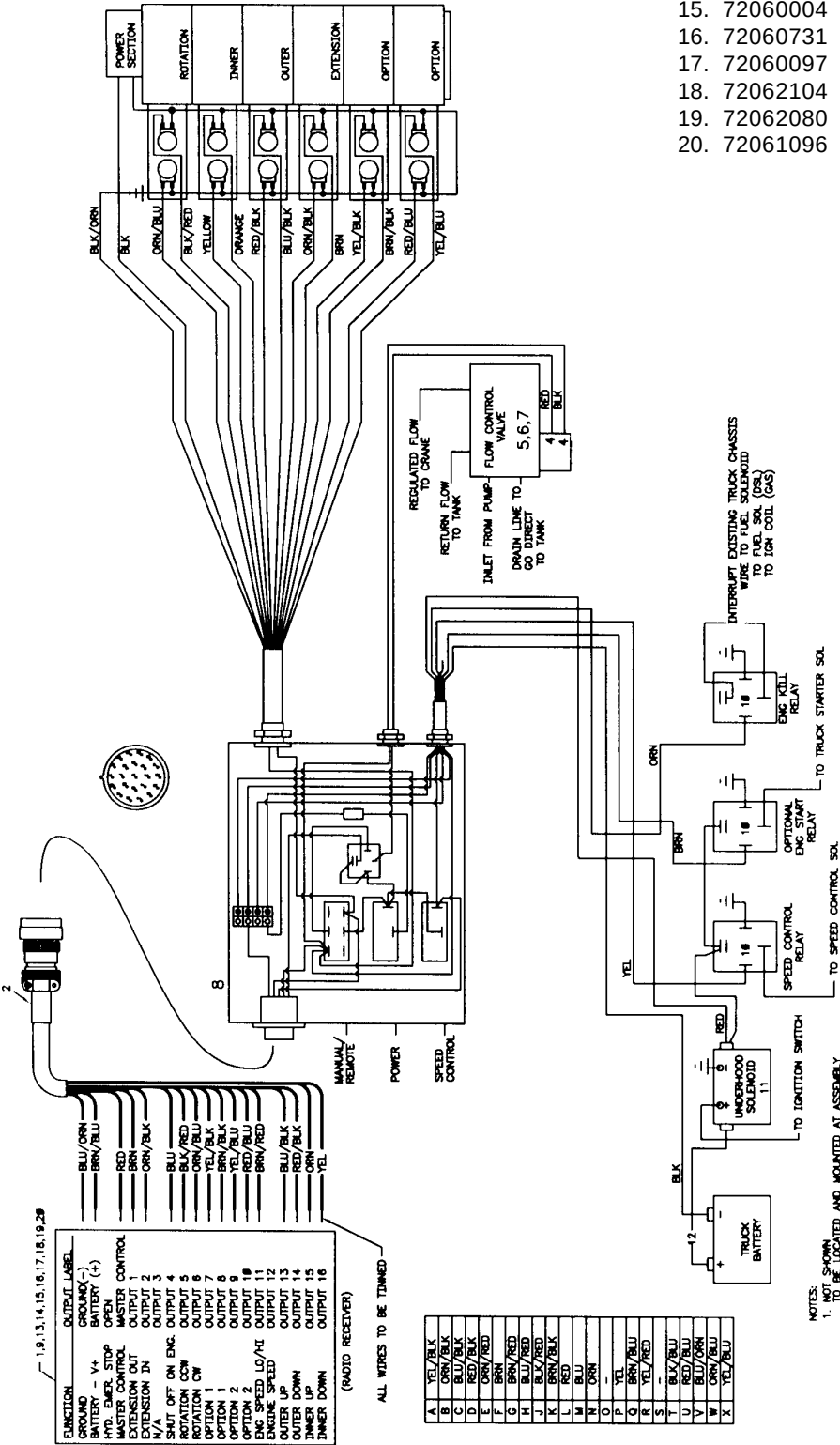
ITEM	PART NO.	DESCRIPTION	QTY
1.	52701550	RESERVOIR	1
2.	73141276	STRAINER	1
3.	73014671	FILL CAP	1
4.	72060093	CAP SCR 1/2-13X1-1/2 HHGR5	4
5.	72063053	WASHER 1/2 LOCK	4
6.	72062004	NUT 1/2-13 HEX	4



**ELECTRICAL SCHEMATIC-RADIO RMT
(99900768)**

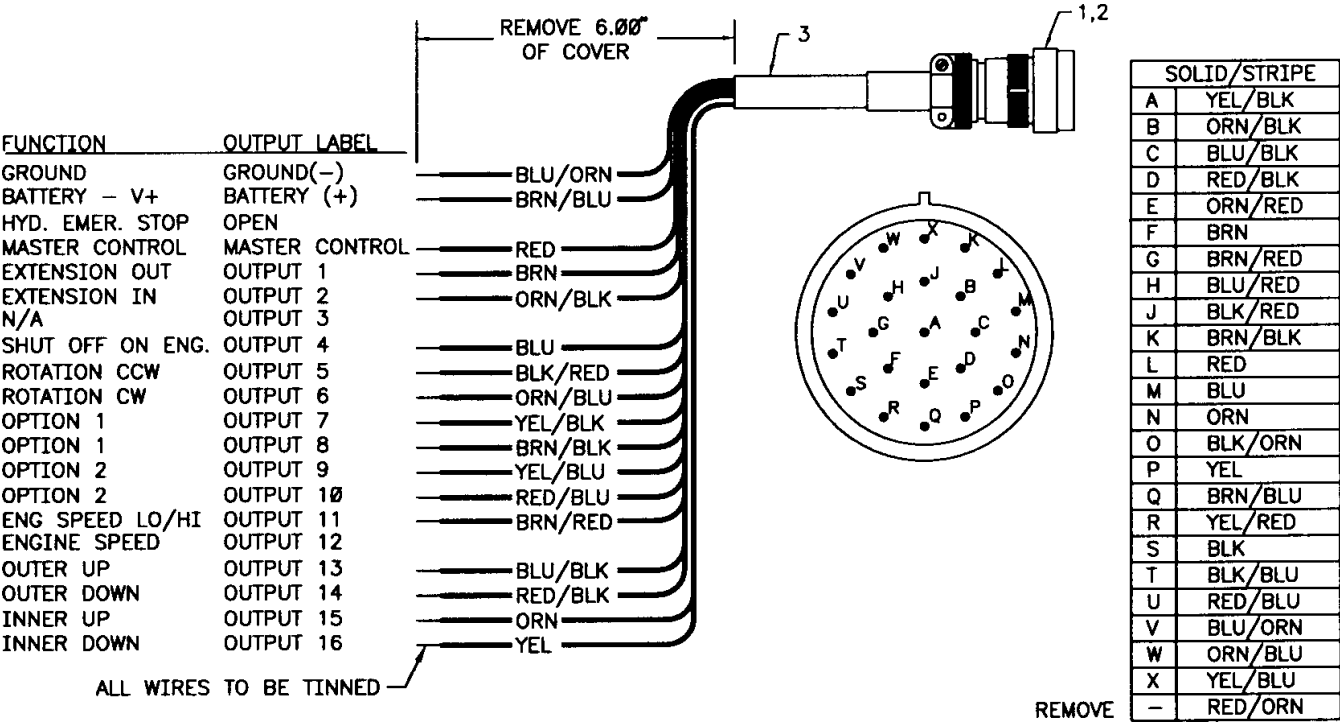
ITEM	PART NO.	DESCRIPTION	QTY
1.	60117971	ENCLOSURE	1
2.	51714624	CABLE ASM-18GA/24 WIREX115	1
3.	60117974	MTG BRKT (SEE NOTE 1)	1
4.	77040186	TERM	1
5.	73054876	VALVE	1REF

6.	72060051	CAP SCR 3/8-16X2-1/4HHGR5 Z	2
7.	72062103	NUT 3/8-16 HEX NYLOC ZINC	2
8.	51712331	CABLE ASM-JIC BOX 6X6X4	1
9.	70732818	RADIO REMOTE SYSTEM	1
10.	77041251	BOSCH RELAY	3
11.	77041237	SOLENOID-12V	1
12.	51704784	CABLE ASM #1 WIRE X 6"	1
13.	60117972	PLATE MTG RADIO RMT RCVR	1
14.	60117973	BRKT MTG RAD RMT ANTENNA	1
15.	72060004	CAP SCR 1/4-20X1 HHGR5	4
16.	72060731	CAP SCR 5/16-18X3/4 SH ZINC	4
17.	72060097	CAP SCR 1/2-13X3 HHGR5 Z	1
18.	72062104	NUT 1/4-20 HEX NYLOC ZINC	4
19.	72062080	NUT 1/2-13 HEX NYLOC ZINC	1
20.	72061096	SCR SLFTP #12-14X1/2 HWH	2



CABLE ASM-18GA/24 WIREX115
(51714624)

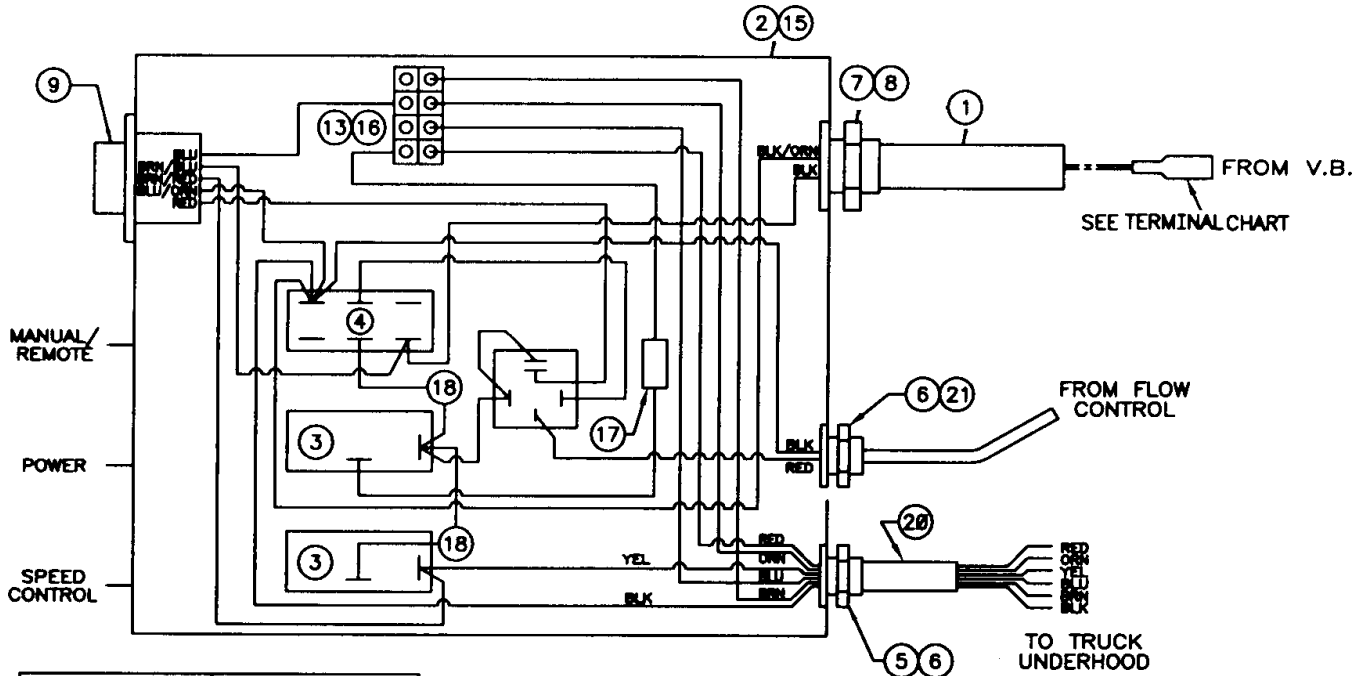
ITEM	PART NO.	DESCRIPTION	QTY
1.	77044621	PIN	24
2.	77044579	CONNECTOR	1
3.	89044100	CABLE 18GA/24 WIREX115	1



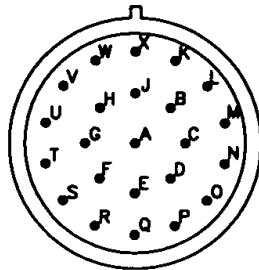
CABLE ASM 94" W/JIC BOX RADIO RMT (51712331)

ITEM	PART NO.	DESCRIPTION	QTY
1.	89044100	CABLE 18GA/24 WIREX94	1
2.	90714496	JIC BOX 6X6X4	1
3.	77041345	TOGGLE SWITCH SGL THW	2
4.	77041354	TOGGLE SWITCH DBL THW	1
5.	77044018	CONNECTOR	3
6.	77044201	NUT 1/2 ELEC LOCK	3
7.	77044196	CONNECTOR	1
8.	77044202	NUT 3/4 ELEC LOCK	1

9.	77044620	CONNECTOR	1
10.	77040186	TERM	14
11.	77040282	TERM	6
12.	77044668	PLUG	2
13.	77040051	TERM	6
15.	70393257	DECAL 6X6X4 JIC BOX	1
16.	77044341	TERM BLOCK	1
17.	77041056	FUSE IN LINE 20 AMP	1
18.	89044232	WIRE 14GA RED STRD X 3"	2
20.	89044354	CABLE 14GA/6 WIREX84	1
21.	77044468	CONNECTOR	1



SOLID/STRIPE	TERM	ITEM NO
A YEL/BLK		10
B ORN/BLK		10
C BLU/BLK		10
D RED/BLK		10
E ORN/RED		-
F BRN		10
G BRN/RED		-
H BLU/RED		-
J BLK/RED		10
K BRN/BLK		10
L RED		-
M BLU		-
N ORN		10
O 12		-
P YEL		10
Q BRN/BLU		-
R YEL/RED		-
S 12		-
T BLK/BLU		-
U RED/BLU		10
V BLU/ORN		-
W ORN/BLU		10
X YEL/BLU		10
- RED/ORN		-



NOTE:

- 1.) REMOVE THE FOLLOWING FROM CABLE-BLU
BRN/BLU
BRN/RED
BLK/ORN
RED

SECTION 4. GENERAL REFERENCE

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NOTES

[illegible]

NOTICE

The user of this form is responsible in determining that these inspections satisfy all applicable regulatory requirements

OWNER/COMPANY

CONTACT PERSON

CRANE MAKE & MODEL

CRANE SERIAL NUMBER

UNIT I.D. NUMBER

LOCATION OF UNIT

Inspection Checklist**CRANES****1**

REV: 6-18-99

TYPE OF INSPECTION (check one)

☐

DAILY (if deficiency found)

☐

QUARTERLY

☐

MONTHLY

☐

ANNUAL

DATE INSPECTED

HOUR METER READING (if applicable)

INSPECTED BY (print)

SIGNATURE OF INSPECTOR

TYPE OF INSPECTION**NOTES:**

Daily and monthly inspections are to be performed by a "designated" person, who has been selected or assigned by the employer or the employer's representative as being competent to perform specific duties.

Quarterly and annual inspections are to be performed by a "qualified" person who, by possession of a recognized degree in an applicable field or certificate of professional standing, or who, by extensive knowledge, training and experience has successfully demonstrated the ability to solve or resolve problems related to the subject matter and work.

One hour of normal crane operation assumes 20 complete cycles per hour. If operation exceeds 20 cycles per hour, inspection frequency should be increased accordingly.

Consult Operator / Service Manual for additional inspection items, service bulletins and other information.

Before inspecting and operating crane, crane must be set up away from power lines and leveled with outriggers fully extended.

DAILY (D): Before each day of operation, those items designated with a **(D)** must be inspected. This inspection need not be recorded unless a deficiency (**(X)**) is found. If the end user chooses to record all daily inspections and those daily inspections include the monthly inspection requirements, there would be no need for a separate monthly inspection.

MONTHLY (M): Monthly inspections or 100 hours of normal operation (which ever comes first) includes all daily inspections plus items designated with an **(M)**. This inspection must be recorded.

QUARTERLY (Q): Every three to four months or 300 hours of normal operation (which ever comes first) includes all daily and monthly inspection items plus items designated with a **(Q)**. This inspection must be recorded.

ANNUAL (A): Each year or 1200 hours of normal operation (which ever comes first) includes all items on this form which encompasses daily, monthly and quarterly inspections plus those items designated by **(A)**. This inspection must be recorded.

FREQUENCY	ITEM	KEY	✓ = SATISFACTORY ✗ = DEFICIENCY (must be corrected prior to operation)	R = RECOMMENDATION (should be considered for corrective action) NA = NOT APPLICABLE	STATUS ✓ , ✗ , R, NA
			INSPECTION DESCRIPTION		
D	1	Labels	All load charts, safety & warning labels, & control labels are present and legible.		
D	2		Check all safety devices for proper operation.		
D	3	Controls	Control mechanisms for proper operation of all functions, leaks & cracks.		
D	4	Station	Control and operator's station for dirt, contamination by lubricants, & foreign materials.		
D	5	Hyd System	Hydraulic system (hoses, tubes & fittings) for leakage & proper oil level.		
D	6	Hook	Presence & proper operation of hook safety latches.		
D	7	Rope	Proper reeving of wire rope on sheaves & winch drum.		
D	8	Pins	Proper engagement of all connecting pins & pin retaining devices.		
D	9	General	Overall observation of crane for damaged or missing parts, cracked welds & presence of safety covers.		
D	10	Operation	During operation, observe crane for abnormal performance, unusual wear (loose pins, wire rope damage, etc.). If observed, discontinue use & determine cause & severity of hazard.		
D	11	Remote Ctrls	Operate remote control devices to check for proper operation.		
D	12	Electrical	Operate all lights, alarms, etc. to check for proper operation.		
D	13	Anti 2-Blocking	Operate anti 2-blocking device to check for proper operation.		
D	14		Other		
D	15		Other		

Inspection Checklist**CRANES****2**

FREQUENCY	ITEM	KEY	✓ = SATISFACTORY ✕ = DEFICIENCY (must be corrected prior to operation)	R = RECOMMENDATION (should be considered for corrective action) NA = NOT APPLICABLE	STATUS ✓, ✕, R, NA
			INSPECTION DESCRIPTION		
M	16	Daily	All daily inspection items.		
M	17	Cylinders	Visual inspection of cylinders for leakage at rod, fittings & welds. Damage to rod & case.		
M	18	Valves	Holding valves for proper operation.		
M	19	Valves	Control valve for leaks at fittings & between sections.		
M	20	Valves	Control valve linkages for wear, smoothness of operation & tightness of fasteners.		
M	21	General	Bent, broken or significantly rusted/corroded parts.		
M	22	Electrical	Electrical systems for presence of dirt, moisture & frayed wires.		
M	23	Structure	All structural members for damage.		
M	24	Welds	All welds for breaks & cracks.		
M	25	Pins	All pins for proper installation & condition.		
M	26	Hardware	All bolts, fasteners & retaining rings for tightness, wear & corrosion		
M	27	Wear Pads	Presence of wear pads.		
M	28	Pump & Motor	Hydraulic pumps & motors for leakage at fittings, seals & between sections.		
M	29	PTO	Transmission/PTO for leakage, abnormal vibration & noise.		
M	30	Hyd Fluid	Quality of hydraulic fluid and for presence of water.		
M	31	Hyd Lines	Hoses & tubes for leakage, abrasion damage, blistering, cracking, deterioration, fitting leakage & secured properly.		
M	32	Hook	Load hook for abnormal throat distance, twist, wear & cracks.		
M	33	Rope	Condition of load line.		
M	34	Manual	Presence of operator's manuals with unit.		
M	35		Other		
Q	36	Daily	All daily inspection items.		
Q	37	Monthly	All monthly inspection items.		
Q	38		Condition of wear pads		
Q	39	Rotation Sys	Rotation bearing for proper torque of all accessible mounting bolts.		
Q	40	Hardware	Base mounting bolts for proper torque.		
Q	41	Structure	All structural members for deformation, cracks & corrosion.		
	42		● Base		
	43		● Outrigger beams & legs		
	44		● Mast		
	45		● Inner boom		
	46		● Outer boom		
	47		● Extension(s)		
	48		● Jib boom		
	49		● Jib extension(s)		
	50		● Other		
Q	51	Hardware	Pins, bearings, shafts, gears, rollers, & locking devices for wear, cracks, corrosion & distortion.		
	52		● Rotation bearing(s)		
	53		● Inner boom pivot pin(s) & retainer(s)		
	54		● Outer boom pivot pin(s) & retainer(s)		
	55		● Inner boom cylinder pin(s) & retainer(s)		
	56		● Outer boom cylinder pin(s) & retainer(s)		
	57		● Extension cylinder pin(s) & retainer(s)		
	58		● Jib boom pin(s) & retainer(s)		
	59		● Jib cylinder pin(s) & retainer(s)		
	60		● Jib extension cylinder pin(s) & retainer(s)		
	61		● Boom tip attachments		
	62		● Other		
Q	63	Hyd Lines	Hoses, fittings & tubing for proper routing, leakage, blistering, deformation & excessive abrasion.		
	64		● Pressure line(s) from pump to control valve		
	65		● Return line(s) from control valve to reservoir		
	66		● Suction line(s) from reservoir to pump		
	67		● Pressure line(s) from control valve to each function		
	68		● Load holding valve pipe(s) and hose(s)		
	69		● Other		

3

FREQUENCY	ITEM	KEY	✓ = SATISFACTORY ✗ = DEFICIENCY (must be corrected prior to operation)	R = RECOMMENDATION (should be considered for corrective action) NA = NOT APPLICABLE	STATUS ✓ , ✗ , R, NA
			INSPECTION DESCRIPTION		
Q	70	Pumps, PTO's & Motors	Pumps, PTO's & motors for loose bolts/fasteners, leaks, noise, vibration, loss of performance, heating & excess pressure.		
	71		● Winch motor(s)		
	72		● Rotation motor(s)		
	73		● Other		
Q	74	Valves	Hydraulic valves for cracks, spool return to neutral, sticking spools, proper relief valve setting, relief valve failure.		
	75		● Main control valve		
	76		● Load holding valve(s)		
	77		● Outrigger or auxiliary control valve(s)		
	78		● Other		
	79		● Other		
Q	80	Cylinders	Hydraulic cylinders for drifting, rod seal leakage & leakage at welds. Rods for nicks, scores & dents. Case for damage. Case & rod ends for damage & abnormal wear.		
	81		● Outrigger cylinder(s)		
	82		● Inner boom cylinder(s)		
	83		● Outer boom cylinder(s)		
	84		● Extension cylinder(s)		
	85		● Rotation cylinder(s)		
	86		● Jib lift cylinder(s)		
	87		● Jib extension cylinder(s)		
	88		● Other		
Q	89	Winch	Winch, sheaves & drums for damage, abnormal wear, abrasions & other irregularities.		
Q	90	Hyd Filters	Hydraulic filters for replacement per maintenance schedule.		
A	91	Daily	All daily inspection items.		
A	92	Monthly	All monthly inspection items.		
A	93	Quarterly	All quarterly inspection items.		
A	94	Hyd Sys	Hydraulic fluid change per maintenance schedule.		
A	95	Controls	Control valve calibration for correct pressures & relief valve settings		
A	96	Valves	Safety valve calibration for correct pressures & relief valve settings.		
A	97	Valves	Valves for failure to maintain correct settings.		
A	98	Rotation Sys	Rotation drive system for proper backlash clearance & abnormal wear, deformation & cracks.		
A	99	Lubrication	Gear oil change in rotation drive system per maintenance schedule.		
A	100	Hardware	Check tightness of all fasteners and bolts.		
A	101	Wear Pads	Wear pads for excessive wear.		
A	102	Loadline	Loadline for proper attachment to drum.		

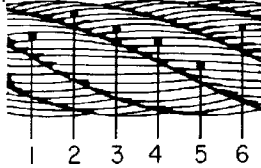
4

If additional space is required, reproduce this page and attach to this report.

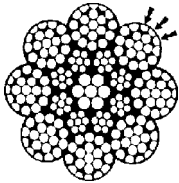
WIRE ROPE INSPECTION

Wire rope with any of the deficiencies shown below shall be removed and replaced immediately.

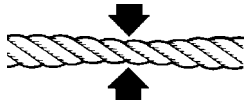
- A. Corrosion can be cause for replacement. Any development of corrosion must be noted and monitored closely.
- B. When there are either 3 broken wires in one strand or a total of six broken wires in all strands in any one rope lay.



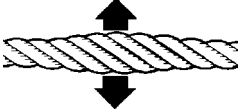
- C. When flat spots on the outer wires appear and those outside wires are less than 2/3 the thickness of the unworn outer wire.



- D. When there is a decrease of diameter indicating a core failure.



- E. When kinking, crushing, birdcaging or other distortion occurs.



- F. When there is noticeable heat damage (discoloration) of the rope by any means.



- G. When the diameter is reduced from nominal size by 1/32" or more.



- H. If a broken wire protrudes or loops out from the core of the rope.

**HOOK INSPECTION**

Hooks having any of the listed deficiencies shall be removed from service unless a qualified person approves their continued use and initiates corrective action. Hooks approved for continued use shall be subjected to periodic inspection.

A. DISTORTION**Bending / Twisting**

A bend or twist exceeding 10° from the plane of the unbent hook.

Increased Throat Opening

HOOK WITHOUT LATCH: An increase in throat opening exceeding 15% (Or as recommended by the manufacturer)

HOOK WITH LATCH: An increase of the dimension between a fully-opened latch and the tip section of the hook exceeding 8% (Or as recommended by the manufacturer)

B. WEAR

If wear exceeds 10% of the original sectional dimension. (Or as recommended by the manufacturer)

C. CRACKS, NICKS, GOUGES

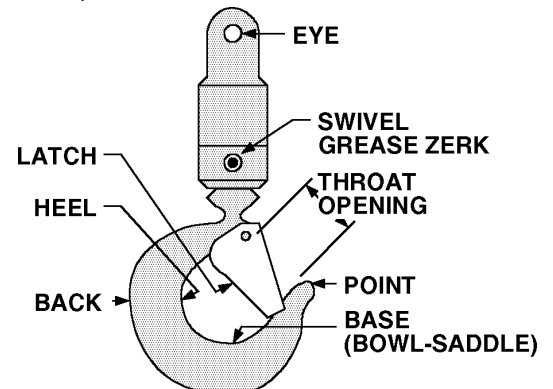
Repair of cracks, nicks, and gouges shall be carried out by a designated person by grinding longitudinally, following the contour of the hook, provided that no dimension is reduced more than 10% of its original value. (Or as recommended by the manufacturer) (A qualified person may authorize continued use if the reduced area is not critical.)

D. LATCH**Engagement, Damage & Malfunction**

If a latch becomes inoperative because of wear or deformation, and is required for the service involved, it shall be replaced or repaired before the hook is put back into service. If the latch fails to fully close the throat opening, the hook shall be removed from service or "moused" until repairs are made.

E. HOOK ATTACHMENTS & SECURING MEANS

If any indication of distortion, wear, cracks, nicks or gouges are present, unless a qualified person authorizes their use. (Or as recommended by the manufacturer)



HOLDING VALVE INSPECTION

The cylinders are equipped with holding valves that prevent sudden movement of the cylinder rods in the event of a hydraulic hose or other hydraulic component failure. The valve is checked in the following manner:

1. With a full rated load, extend the cylinder in question and kill the engine.
2. Operate the control valve to retract the cylinder. If the cylinder "creeps", replace the holding valve. If the cylinder does not "creep", the valve is serviceable.

ANTI-TWO BLOCKING DEVICE INSPECTION

(See Vol. 1, Operation, Maintenance and Repair for a complete description)

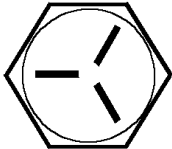
The anti two block system should be checked daily as follows:

1. Examine flexible rod and weight to insure free unrestricted mechanical operation
2. Examine cord for damage, cuts or breaks. Grasp cord and pull to check operation of cord reel. The cord should retract on reel when released.
3. Start vehicle, engage PTO and slowly winch loadline up until anti-two block weight comes in contact with the hook end of the loadline cable. At the moment the weight is fully supported, a marked difference in winch operation should be noted. At this point, the winch up function should become very sluggish or non-functioning and have very little pull capability. Slowly increase truck engine speed while simultaneously actuating the winch up function. The winch characteristics should remain sluggish with little or no tensioning of the cable. If operation other than as described occurs, stop immediately and investigate. Failure to do so will risk damage to the cable or the crane. If all is well at this point, actuate the boom extend function slowly, and gradually increase to full actuation. Once again the function should be sluggish or non-existent with no tightening of the winch cable. If operation other than described occurs, stop immediately and reverse the function.

The final check involves actuating both the winch up and extend functions together and checking for proper operation of the anti two blocking circuit. Once again, start slowly and stop if it appears the cable is being tensioned.

If the anti two block function appears to be functioning normally, winch the cable down until the sensing weight swings free.

COARSE THREAD BOLTS

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE			
		 SAE J429 GRADE 5		 SAE J429 GRADE 8	
		PLAIN (FT-LB)	PLATED (FT-LB)	PLAIN (FT-LB)	PLATED (FT-LB)
5/16-18	0.3125	17	13	25	18
3/8-16	0.3750	31	23	44	33
7/16-14	0.4375	49	37	70	52
1/2-13	0.5000	75	57	105	80
9/16-12	0.5625	110	82	155	115
5/8-11	0.6250	150	115	220	160
3/4-10	0.7500	265	200	375	280
7/8-9	0.8750	395	295	605	455
1-8	1.0000	590	445	910	680
1 1/8-7	1.1250	795	595	1290	965
1 1/4-7	1.2500	1120	840	1815	1360
1-3/8-6	1.3750	1470	1100	2380	1780
1 1/2-6	1.5000	1950	1460	3160	2370

When using the torque data in the charts above, the following rules should be observed.

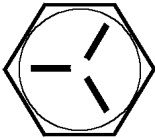
1. Bolt manufacturer's particular specifications should be consulted when provided.
2. Flat washers of equal strength must be used.
3. All torque measurements are given in foot-pounds. To convert to inch-pounds, multiply by 12.
4. Torque values specified are for bolts with residual oils or no special lubricants applied. If special lubricants of high stress ability, such as Never-Seez compound graphite and oil, molybdenum disulphite, colloidal copper or white lead are applied, multiply the torque values in the charts by the factor .90. The use of Loctite does not affect the torque values listed above.
5. Torque values for socket-head capscrews are the same as for Grade 8 capscrews.

WARNING

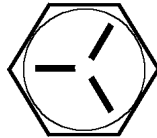
Anytime a gear-bearing bolt is removed, it must be replaced with a new bolt of the identical grade and size. Once a bolt has been torqued to 75% of its proof load and then removed, the torque coefficient may no longer be the same as when the bolt was new thus giving indeterminate clamp loads after torquing. Failure to replace gear-bearing bolts may result in bolt failure due to metal fatigue causing serious injury or DEATH.

TORQUE DATA CHART - DOMESTIC

FINE THREAD BOLTS

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE			
					
		SAE J429 GRADE 5		SAE J429 GRADE 8	
		PLAIN (FT-LB)	PLATED (FT-LB)	PLAIN (FT-LB)	PLATED (FT-LB)
5/16-24	0.3125	19	14	27	20
3/8-24	0.3750	35	26	49	35
7/16-20	0.4375	55	41	78	58
1/2-20	0.5000	90	64	120	90
9/16-18	0.5625	120	90	170	130
5/8-18	0.6250	170	130	240	180
3/4-16	0.7500	300	225	420	315
7/8-11	0.8750	445	325	670	500
1-12	1.0000	645	485	995	745
1 1/8-12	1.1250	890	670	1445	1085
1 1/4-12	1.2500	1240	930	2010	1510
1-3/8-12	1.3750	1675	1255	2710	2035
1 1/2-12	1.5000	2195	1645	3560	2670

COARSE THREAD BOLTS

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE			
					
		SAE J429 GRADE 5		SAE J429 GRADE 8	
		PLAIN (FT-LB)	PLATED (FT-LB)	PLAIN (FT-LB)	PLATED (FT-LB)
5/16-18	0.3125	17	13	25	18
3/8-16	0.3750	31	23	44	33
7/16-14	0.4375	49	37	70	52
1/2-13	0.5000	75	57	105	80
9/16-12	0.5625	110	82	155	115
5/8-11	0.6250	150	115	220	160
3/4-10	0.7500	265	200	375	280
7/8-9	0.8750	395	295	605	455
1-8	1.0000	590	445	910	680
1 1/8-7	1.1250	795	595	1290	965
1 1/4-7	1.2500	1120	840	1815	1360
1-3/8-6	1.3750	1470	1100	2380	1780
1 1/2-6	1.5000	1950	1460	3160	2370

When using the torque data in the charts above, the following rules should be observed.

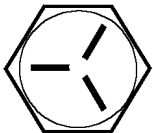
1. Bolt manufacturer's particular specifications should be consulted when provided.
2. Flat washers of equal strength must be used.
3. All torque measurements are given in foot-pounds. To convert to inch-pounds, multiply by 12.
4. Torque values specified are for bolts with residual oils or no special lubricants applied. If special lubricants of high stress ability, such as Never-Seez compound graphite and oil, molybdenum disulphite, collodial copper or white lead are applied, multiply the torque values in the charts by the factor .90. The use of Loctite does not affect the torque values listed above.
5. Torque values for socket-head capscrews are the same as for Grade 8 capscrews.

WARNING

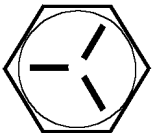
Anytime a gear-bearing bolt is removed, it must be replaced with a new bolt of the identical grade and size. Once a bolt has been torqued to 75% of its proof load and then removed, the torque coefficient may no longer be the same as when the bolt was new thus giving indeterminate clamp loads after torquing. Failure to replace gear-bearing bolts may result in bolt failure due to metal fatigue causing serious injury or DEATH.

TORQUE DATA CHART - METRIC

FINE THREAD BOLTS

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE			
					
		SAE J429 GRADE 5		SAE J429 GRADE 8	
		PLAIN (KG-M)	PLATED (KG-M)	PLAIN (KG-M)	PLATED (KG-M)
5/16-24	0.3125	3	2	4	3
3/8-24	0.3750	5	4	7	5
7/16-20	0.4375	8	6	11	8
1/2-20	0.5000	12	9	17	12
9/16-18	0.5625	17	12	24	18
5/8-18	0.6250	24	18	33	25
3/4-16	0.7500	41	31	58	44
7/8-11	0.8750	62	45	93	69
1-12	1.0000	89	67	138	103
1 1/8-12	1.1250	123	93	200	150
1 1/4-12	1.2500	171	129	278	209
1-3/8-12	1.3750	232	174	375	281
1 1/2-12	1.5000	304	228	492	369

COARSE THREAD BOLTS

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE			
					
		SAE J429 GRADE 5		SAE J429 GRADE 8	
		PLAIN (KG-M)	PLATED (KG-M)	PLAIN (KG-M)	PLATED (KG-M)
5/16-18	0.3125	2	2	3	2
3/8-16	0.3750	4	3	6	5
7/16-14	0.4375	7	5	10	7
1/2-13	0.5000	10	8	15	11
9/16-12	0.5625	15	11	21	16
5/8-11	0.6250	21	16	30	22
3/4-10	0.7500	37	28	52	39
7/8-9	0.8750	55	41	84	63
1-8	1.0000	82	62	126	94
1 1/8-7	1.1250	110	82	178	133
1 1/4-7	1.2500	155	116	251	188
1-3/8-6	1.3750	203	152	329	246
1 1/2-6	1.5000	270	210	438	328

When using the torque data in the charts above, the following rules should be observed.

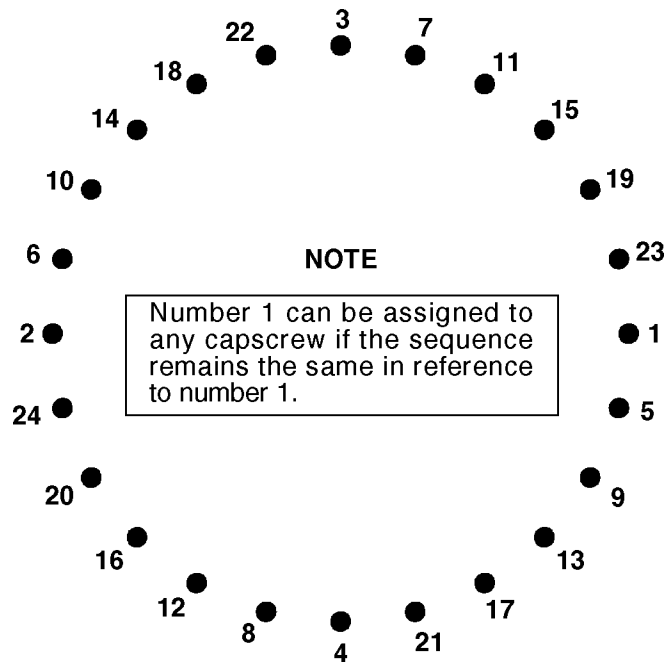
1. Bolt manufacturer's particular specifications should be consulted when provided.
2. Flat washers of equal strength must be used.
3. All torque measurements are given in kilogram-meters.
4. Torque values specified are for bolts with residual oils or no special lubricants applied. If special lubricants of high stress ability, such as Never-Seez compound graphite and oil, molybdenum disulphite, colloidal copper or white lead are applied, multiply the torque values in the charts by the factor .90. The use of Loctite does not affect the torque values listed above.
5. Torque values for socket-head capscrews are the same as for Grade 8 capscrews.

WARNING

Anytime a gear-bearing bolt is removed, it must be replaced with a new bolt of the identical grade and size. Once a bolt has been torqued to 75% of its proof load and then removed, the torque coefficient may no longer be the same as when the bolt was new thus giving indeterminate clamp loads after torquing. Failure to replace gear-bearing bolts may result in bolt failure due to metal fatigue causing serious injury or DEATH.

TURNTABLE BEARING FASTENER TIGHTENING SEQUENCE

Refer to the diagram below for proper tightening/torquing sequence of the turntable bearing to the crane base and crane mast. The total quantity of cap screws varies dependent on crane model.



TIGHTENING PROCEDURE:

1. Refer to the Torque Data Chart to determine the proper torque value to apply to the size of cap screw used.
2. Follow the tightening sequence shown in the diagram. Note that the quantity of cap screws may differ from the diagram, but the sequence must follow the criss-cross pattern as shown in the diagram.
3. Torque all cap screws to approximately 40% of the specified torque value, by following the sequence.
 (EXAMPLE: $.40 \times 265 \text{ FT-LBS} = 106 \text{ FT-LBS}$)
 (EXAMPLE-METRIC: $.40 \times 36 \text{ KG-M} = 14.4 \text{ KG-M}$)
4. Repeat Step 3, but torquing all cap screws to 75% of the specified torque value. Continue to follow the tightening sequence.
 (EXAMPLE: $.75 \times 265 \text{ FT-LBS} = 199 \text{ FT-LBS}$)
 (EXAMPLE-METRIC: $.75 \times 36 \text{ KG-M} = 27 \text{ KG-M}$)
5. Using the proper sequence, torque all cap screws to the listed torque value as determined from the Torque Data Chart.

TURNABLE BEARING INSPECTION FOR REPLACEMENT

Before a bearing is removed from a crane for inspection, one of the following conditions should be evident:

1. Metal particles present in the bearing lubricant.
2. Increased drive power required to rotate the crane.
3. Noise emitting from the bearing during crane rotation.
4. Rough crane rotation.
5. Uneven or excessive wear between the pinion gear and turntable gear.

If none of the above conditions exists, the bearing is functioning properly and need not be replaced. But, if one or more of the above conditions exists, inspection may be required. Limits are measured in "TILT" which is dependent on the internal clearances of the bearing. TILT is the most practical determination of a bearing's internal clearance once mounted on a crane.

Periodic readings indicating a steady increase in TILT may be an indicator of bearing wear. Note that a bearing found to have no raceway cracks or other structural irregularities should be reassembled and returned to service.

TEST PROCEDURE

STEP 1.

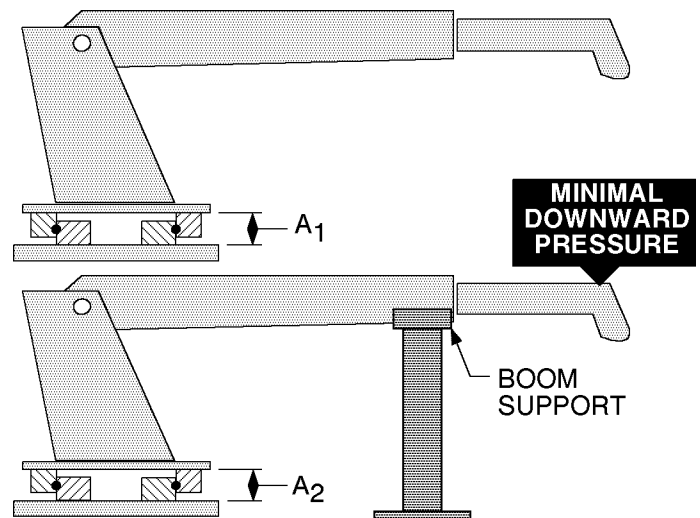
With the crane horizontal and fully extended, measure between the top and bottom mounting surfaces of the turntable bearing (A_1), using a dial indicator for accuracy.

STEP 2.

Reverse the load by applying minimal downward pressure on the boom while the boom is in the boom support or on a solid surface. Again measure A_2 .

STEP 3.

Subtract A_1 from A_2 to determine tilt and compare the result with the accompanying chart.



COMPARISON CHART - MODEL TO MEASURED TILT DIMENSION

NOTE THE FIGURES LISTED IN THIS CHART ARE SERVICE GUIDELINES AND DO NOT, IN THEMSELVES, REQUIRE THAT THE BEARING BE INSPECTED. IF THERE IS REASON TO SUSPECT AN EXCESS OF BEARING WEAR AND THE MEASURED TILT DIMENSION EXCEEDS THE DIMENSION LISTED, REMOVE THE BEARING FOR INSPECTION.	IMT CRANE, LOADER OR TIREHAND MODEL	1007 1014 1014A 2015 2020 2109 3000 3016 3816 3020 425 4300 5016 6016 TH7 BODY ROT'N TH1449 BODY ROT'N TH15B CLAMP TH2551B CLAMP TH2557A CLAMP	5200 5200R 5217 5800 7020 7025 7200 7415 9000 TH10 BODY ROT'N TH14 BODY ROT'N	16000 32018 32030 T30 T40	9800 12916 13031 13034 14000 15000 18000 20017 H1200 H1200RR T50 TH2551B BODY ROT'N TH2557B BODY ROT'N TH2557A BODY ROT'N
	BALL DIA. (REF)	.875" (22mm)	1.00" (25mm)	1.18"-1.25" (30-32mm)	1.75" (44mm)
	TILT DIM. (A₁-A₂)	.060" (1.524mm)	.070" (1.778mm)	.075" (1.905mm)	.090" (2.286mm)

The information within this manual has been compiled and checked but errors do occur. To provide our customers with a method of communicating those errors we have provided the Manual Change Request form below. In addition to error reporting, you are encouraged to suggest changes or additions to the manual which would be of benefit to you. We cannot guarantee that these additions will be made but we do promise to consider them. When completing the form, please write or print clearly. Submit a copy of the completed form to the address listed below.

MANUAL CHANGE REQUEST

DATE	PRODUCT MANUAL	MANUAL PART NO.
SUBMITTED BY		
COMPANY		
ADDRESS		
CITY, STATE, ZIP		
TELEPHONE		

☐ ERROR FOUND

LOCATION OF ERROR (page no.):

DESCRIPTION OF ERROR:

☐ REQUEST FOR ADDITION TO MANUAL

DESCRIPTION OF ADDITION:

REASON FOR ADDITION:

MAIL TO: IOWA MOLD TOOLING Co., Inc.
Box 189,
Garner IA 50438-0189
ATTN: Technical Publications

LIMITED WARRANTY

WARRANTY COVERAGE - Products manufactured by Iowa Mold Tooling Co., Inc. (IMT) are warranted to be free from defects in material and workmanship, under proper use, application and maintenance in accordance with IMT's written recommendations, instructions and specifications as follows:

1. Ninety (90) days; labor on IMT workmanship from the date of shipment to the end user.
2. One (1) year; original IMT parts from the date of shipment to the end user.

IMT's obligation under this warranty is limited to, and the sole remedy for any such defect shall be the repair or replacement (at IMT's option) of unaltered parts returned to IMT, freight prepaid, and proven to have such defect, provided such defect occurs within the above stated warranty period and is reported within fourteen (14) days of its occurrence.

IMPLIED WARRANTY EXCLUDED - This is the only authorized IMT warranty and is in lieu of all other express or implied warranties or representations, including any implied warranties of merchantability or fitness for any particular purpose or of any other obligations on the part of IMT.

ITEMS EXCLUDED - The manufacturer gives no warranty on any components purchased by the manufacturer, and such components as are covered only by the warranties of their respective manufacturers.

WARRANTY CLAIMS - Warranty claims must be submitted and shall be processed in accordance with IMT's established warranty claim procedure.

WARRANTY SERVICE - Warranty service will be performed by any IMT distributor authorized to sell new IMT products of the type involved or by any IMT Service Center authorized to service the type of product involved or by IMT in the event of direct sales made by IMT. At the time of requesting warranty service, the purchaser must present evidence of the date of delivery of the product. The purchaser shall pay any premium for overtime labor requested by the purchaser, any charge for making service calls and for transporting the equipment to the place where warranty work is performed.

WARRANTY VOIDED - All obligations of IMT under this warranty shall be terminated: (1) if service other than normal maintenance or normal replacement of service items is performed by someone other than an authorized IMT dealer, (2) if product is modified or altered in ways not approved by IMT.

PURCHASER'S RESPONSIBILITY - This warranty covers only defective material and workmanship. It does not cover depreciation or damage caused by normal wear, accident, improper protection in storage, or improper use. The purchaser has the obligation of performing the care and maintenance duties discussed in IMT's written recommendations, instructions and specifications. Any damage which results because of purchaser's failure to perform such duties shall not be covered by this warranty. The cost of normal maintenance and normal replacement of service items such as filters, belts, etc. shall be paid by the purchaser.

CONSEQUENTIAL DAMAGES - The only remedies the purchaser has in connection with the breach or performance of any warranty on IMT products are those set forth above. In no event will the dealer, IMT or any company affiliated with IMT, be liable for business interruptions, loss of sales and/or profits, rental or substitute equipment, costs of delay or for any other special, indirect, incidental or consequential losses, costs or damages.

REPRESENTATIONS EXCLUDED - IMT products are subject to no expressed, implied or statutory warranty other than herein set forth, and no agent, representative or distributor of the manufacturer has any authority to alter the terms of this warranty in any way whatsoever or to make any representations or promises, express or implied, as to the quality or performance of IMT products other than those set forth above.

CHANGE IN DESIGN - IMT reserves the right to make changes in design or improvements upon its products without imposing any obligation upon itself to install the same upon its products theretofore manufactured.

Effective January, 1985

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